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EEI BULLETIN

• JUNE 1959 •

Common Sense—Our Uncommon Weapon

Fred C. Foy

Report on EEI Purchasing & Stores Committee's Annual Meeting

$1,000,000 All-Electric Living Ad

Kwhr Sales Over the Postwar Period

PUBLISHED BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities)

February 1958-1959

SOURCE AND DISPOSAL OF ENERGY—MONTH OF FEBRUARY

	1959	1958	%
NET GENERATION* (Kwhrs in Thousands)			
By Fuel Burning Plants	43,487,183	39,081,509	+11.3
By Water Power Plants	10,671,009	10,974,237	− 2.8
Total Generation	**54,158,192**	**50,055,746**	**+ 8.2**
ADD—Net Imports Over International Boundaries	256,263	239,386	+ 7.1
Less—Company Use	178,387	167,588	+ 6.4
Less—Energy Used by Producer	1,257,981	1,129,828	+11.3
Net Energy for Distribution	**52,978,087**	**48,997,716**	**+ 8.1**
Lost and Unaccounted for	1,731,012	2,010,287	−13.9
Sales to Ultimate Customers	**51,247,075**	**46,987,429**	**+ 9.1**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of February 28th			
Residential or Domestic	49,377,521	46,907,053	**
Rural (Distinct Rural Rates)	.....	1,648,272	**
Commercial or Industrial:			
Small Light and Power	6,484,350	6,209,849	**
Large Light and Power	316,434	306,611	+ 3.2
Other Customers	189,124	182,961	+ 3.4
Total Ultimate Customers	**56,367,429**	**55,254,746**	**+ 2.0**
KILOWATTHOUR SALES—During Month of February (Kwhrs in Thousands)			
Residential or Domestic	16,328,035	14,691,112	**
Rural (Distinct Rural Rates)	.....	762,181	**
Commercial or Industrial:			
Small Light and Power	8,918,041	7,960,930	**
Large Light and Power	23,925,274	21,648,532	+10.5
Street and Highway Lighting	509,225	477,152	+ 6.7
Other Public Authorities	1,172,209	1,054,342	+11.2
Railroads and Railways	339,312	348,836	− 2.7
Interdepartmental	54,979	44,344	+24.0
Total to Ultimate Customers	**51,247,075**	**46,987,429**	**+ 9.1**
Revenue from Ultimate Customers (Thousands)	**$872,315**	**$811,224**	**+ 7.5**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended February 28, 1959			
Kilowatthours per Customer	3,415	3,219	**
Average Annual Bill	$86.40	$82.08	**
Revenue per Kilowatthour	2.53¢	2.55¢	**

* By courtesy of the Federal Power Commission.

** 1959 not comparable to 1958 due to Rural being in process of reclassification. Rural data now allocated principally between Residential and Commercial.

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The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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EEI BULLETIN

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CONVENTIONS AND MEETINGS

1959

JUNE

21-26 AIEE Summer & Pacific General Meeting and Air Transportation Conference, Olympic Hotel, Seattle, Wash.

22-23 Michigan Electric Association Annual Meeting, Mackinac Island, Michigan.

22-26 Air Pollution Control Association Annual Meeting, Hotel Statler, Los Angeles, Calif.

24-26 Canadian Electrical Association Annual Convention, Manoir Richelieu, Murray Bay, Que.

25-26 EEI-AGA Depreciation Accounting Committees, Chatham Bars Inn, Chatham, Mass.

25-26 PEA General and Customers' Accounting Committee Meeting, Bedford Springs Hotel, Bedford, Pa.

26 EEI Advertising Committee, EEI Headquarters, New York, N. Y.

26 Oklahoma Utilities Association Accounting Section Meeting, Lawtonian Hotel, Lawton, Okla.

29 EEI National Electric Living Policy Committee, EEI Headquarters, New York, N. Y.

29-30 EEI BLBS Executive Committee, Hershey Hotel, Hershey, Pa.

JULY

6-8 EEI Accident Prevention Committee, Biltmore Hotel, Los Angeles, Calif.

30-31 Southeastern Electric Exchange Personnel Administration Section, Grove Park Inn, Asheville, N. C.

SEPTEMBER

7-10 Illuminating Engineering Society National Technical Conference, Fairmont & Mark Hopkins Hotels, San Francisco, Calif.

11-12 The Maryland Utilities Association Annual Fall Conference, The Cavalier, Virginia Beach, Va.

14-15 EEI-AGA 1959-1960 Accounting Division & Section Organization Meetings, Hotel Cleveland, Cleveland, Ohio

14-16 EEI Meter and Service Committee, Hotel Wentworth, Portsmouth, N. H.

16-17 PIP Workshop Conference, Warwick Hotel, Philadelphia, Pa.

17-18 EEI Home Service Committee, EEI Headquarters, New York, N. Y.

17-18 EEI Industrial Power & Heating Group, Treadway Inn, Niagara Falls, N. Y.

17-19 Public Utilities Association of the Virginias 41st Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

18 Oklahoma Utilities Association Gas Division Meeting, Biltmore Hotel, Oklahoma City, Okla.

21-23 EEI Industrial Relations Committee Twelfth Annual Round Table Conference, Drake Hotel, Chicago, Ill.

SEPTEMBER

24-25 Missouri Valley Electric Association Accounting Conference, President Hotel, Kansas City, Mo.

28-
Oct. 2 ASME-AIEE National Power Conference, Kansas City, Mo.

28-30 NELPA 52nd Annual Meeting, Hotel Vancouver, Vancouver, B. C.

30-
Oct. 1 PEA Annual Meeting, Philadelphia, Pa.

OCTOBER

1- 2 EEI Transmission and Distribution Committee, Rice Hotel, Houston, Tex.

5- 6 EEI Electrical System & Equipment Committee, Hotel Muehlbach, Kansas City, Mo.

5- 7 AGA Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

7- 9 Missouri Valley Electric Association Sales, Rural & Home Service Conference, President Hotel, Kansas City, Mo.

7- 9 Indiana Electric Association Annual Convention, French Lick-Sheraton Hotel, French Lick, Ind.

12-14 EEI Prime Movers Committee, Barringer Hotel, Charlotte, N. C.

12-15 NARUC Convention, Bellevue-Stratford Hotel, Philadelphia, Pa.

14-16 Wisconsin Utilities Association Operating & Sales Convention, Schroeder Hotel, Milwaukee, Wis.

15-16 Southeastern Electric Exchange Engineering & Operation Section, Fall Meeting, Biltmore Hotel, Atlanta, Ga.

20-22 EEI Area Development Committee, Westward Ho Hotel, Phoenix, Ariz.

22-23 EEI Statistical Committee, The Homestead, Hot Springs, Va.

22-23 Southeastern Electric Exchange Accounting Conference, Shoreham Hotel, Washington, D. C.

25-29 Rocky Mountain Electrical League 56th Annual Fall Convention, Broadmoor Hotel, Colorado Springs, Colo.

NOVEMBER

4- 6 New Jersey Utilities Association Annual Meeting, Seaview Country Club, Absecon, N. J.

5- 6 Pacific Coast Electrical Association, Hawaiian Conference, Matson House, Honolulu, Hawaii.

12-13 Electric Council of New England Third Annual Conference, Hotel Somerset, Boston, Mass.

16-18 Southeastern Electrical Exchange Sales Section, Roosevelt Hotel, New Orleans, La.

19-20 AGA Managing Committee Meeting, Westward Ho Hotel, Phoenix, Ariz.

29-
Dec. 4 ASME Annual Meeting, Atlantic City, N. J.

Khrushchev Has Declared Economic War on the United States. His Secret Weapon Is Inflation, Mr. Foy Says, and Our Greatest Defense Against This Weapon Is Common Sense

Common Sense—Our Uncommon Weapon

By Fred C. Foy
Chairman and President, Koppers Co., Inc.

ON April 17, Americans underwent a mock attack from an unidentified enemy. In cities all over the United States sirens blew, the Civil Defense forces went into action, people were required to take cover, to react as to a real attack.

The next day the press was filled with reports which indicated that the whole thing had been close to a flop in many areas. The consensus was that people were confused—that knowing it was only practice they didn't really take it seriously. They were far from certain that what they were supposed to do was what they should actually do in case of the real thing.

Neither you nor I have any doubt but that if this very day Mr. Khrushchev were to loose his arrows of destruction on these same cities, what would be left of these same people would rise to the situation in a magnificent common effort. We always have when the attack has struck us. Under fire we set aside our differences and our special interests and face the world in unyielding unity.

When war strikes we assemble our troops and our weapons and devote our entire economy and energies to winning the war and returning to the peace we love so well.

'War' Has Struck

When war strikes! It has struck!

As of today, we are at war. The war was declared by Mr. Khrushchev over a year ago. Here is how he said it:

> "We declare war upon you—excuse me for using such an expression—in the peaceful field of trade. We declare war. We will win over the United States. The threat to the United States is not the intercontinental ballistic missile, but in the field of peaceful production. We are relentless in this and it will prove the superiority of our system."

And what have we done? How have we reacted?

In the face of Russia's military threat with a military war yet undeclared we are devoting upward of $40 billion a year to men and weapons. When we argue it is whether one or another weapon is effective or whether we have enough of either men, missiles or systems. Few would argue that we cannot afford whatever is needed to assure an adequate military defense.

But how are we reacting to Mr. Khrushchev's threat of economic war?

Closing the Gap

We tell ourselves, and the figures prove it, that we are still the world's greatest industrial power. But we are uneasy over the rate at which Mr. Khrushchev and his people are closing the gap. We are disturbed as Russian technicians appear on the scene in Africa, in India, and in other areas of the free world.

We are disturbed as we find even our free world allies taking business away from us in parts of the world which we have long regarded as our markets, and on types of goods where we have been world leaders.

We are even more disturbed as we read report after report in our press of European and Japanese goods and textiles being sold in our markets here at home at prices our own manufacturers simply cannot meet; as we read of more and more "pockets of unemployment" being created in some of our communities, as *U. S. News & World Report* put it recently.

In fact, we seem to have reached the point where we want a reason or reasons why these things are happening. Because, if we have something to blame it on, we hope we can do something about the situation.

Many of those who have studied the problem seem to be agreed that the scapegoat here is inflation—that this is the culprit who is pricing us out of our markets; the thief who, according to the American Institute of Economic Research, has cost Americans who put their money in savings banks, life insurance, U. S. Savings Bonds,

An address before the EEI Purchasing and Stores Committee Meeting, St. Petersburg, Fla., May 5, 1959.

and other supposedly safe investments, $200 billion in purchasing power since 1939.

And are we going after this "inflation" fellow? No less than four separate congressional or governmental committees, three of them appointed since the first of the year, are putting the X-ray on various parts of Mr. Inflation's anatomy. Each of these committees will have its staff of analysts and economists. No doubt they will produce much interesting information, but whether the people will be able to understand what they say is uncertain since they will be dealing largely in economic theory, which over the years has been neither consistent nor easy to understand.

Will the People Understand?

I raise the question here of whether the people will be able to understand, because to the extent that we have inflation today there can be little doubt that we, as a people—or various segments of us—have created it, knowingly or unknowingly. And I am convinced that only we same people can stop it or back it up.

I am convinced that unless we do control inflation here in America, Mr. Khrushchev—our enemy—and other free world nations—our friends—will both overwhelm us in this economic war.

I do fear inflation. I believe it is the strongest secret weapon in Mr. Khrushchev's arsenal—a weapon on which he does not spend a single penny, nor conduct any secret tests, nor even mention as a weapon in his many threats. As a practical matter, I suspect he keeps as quiet as he can about the whole thing in the hope that we might not recognize it for the threat it is, or, if we do, might not have the moral courage to deal with it.

I have some concern that the committees studying this problem will not present it in terms our people can understand. I am concerned also that they will be tempted to try to control it by law instead of leading an attack on the basic causes which probably lie as much in the moral as in the economic areas of our life.

Regardless of the outcome of these investigations and without waiting for their conclusions, I believe we—you and I and all of the other people of the United States—are possessed of a secret weapon which can whip Mr. Khrushchev to a standstill if we are willing to use it.

What is this weapon?

Common sense.

In recent years in the United States it has been a sort of uncommon weapon, even an unpopular one. Most of our people, I suspect, know how to use it, but a lot of us are a little rusty on putting it to work.

Most Powerful Weapon

Maybe we haven't been teaching our young how to use it either. But it's still the most fundamental, most powerful weapon we have—whether to fight inflation at home or Mr. Khrushchev abroad.

During our annual stockholders' meeting, one of our women stockholders asked to express a few thoughts. They seemed to represent common sense at work. She said:

> "First, I want to make it quite definitely clear that I am *not* anti-labor. Neither am I anti-management. But I am becoming sick and tired of *labor* in capitals, as I am sick and tired of all pressure groups. I feel that divisive tactics aimed to advance power and prestige of individuals or the interest of a particular group they represent can be anything but salutary for the general welfare. In today's world, if we are even to continue to exist, we've got to maintain and foster all of the elements of strength within us. For stability and for survival we've got to get on a sound basis—moral, economic, political."

She is so very right! We are using less than common sense if we believe that we can continue to spend more than we take in; buy more goods by producing less, and at the same time outpace the Communists, who in the short space of 42 years have become the second most important industrial power on the face of the earth.

It has taken us 170 years to build our American civilization. We have greater comforts for our people, and we are, I believe, presently stronger militarily than the Russians, but they are catching up fast.

Many of us believe that a proud and strong country such as ours is bound to survive. Unfortunately, the pages of history record the fall of many once great civilizations. In almost every case we find that, while a foreign invader may have been responsible for the final blow, the people themselves destroyed their inheritance and culture.

The Egyptian Empire, the most advanced of its day, was wrecked by an unmanageable government bureaucracy.

The Fate of Athens

Athens was an easy prey to the vigorous citizens of early Rome when it became infused with the philosophy that work and savings were crimes against society. Isocrates, a contemporary of Plato, had this to say of the change which had taken place in Athens:

> "I wish to say that a mighty change has come in the affairs of our city, and our ideals are utterly unlike those of our leaders in a previous generation. When I was a boy it was considered not only safe but honorable to create an estate, so that almost all men of standing wished to add to their possessions and felt a certain dignified honor in prospering, but now one must apologize for any success in business as if it were the utter violation of the moral law, so that today it is worse to seem to prosper than to be an open criminal. Criminals can get off with a small punishment or a pardon, but there is no escape for the prosperous, as they are doomed to utter destruction. You can find more men banished for their wealth than criminals punished for their crimes."

Rome, too, became decadent and the collapse of the Roman Empire can be attributed to the same social and economic evils—excessive spending for non-productive works, undue centralization of government, excessive taxation and a tremendously burdensome free food distribution policy.

At our stockholders' meeting the woman stockholder, to whom I have already referred, made a further stimulating observation. She said:

> "Recently a prominent labor leader was quoted in the newspapers as demanding with a grin, 'Who is

the public?' Did the grin mask a sneer? Did you feel affronted, as I did? In any event it would seem to be high time that we, stockholders in this and other businesses, a very important segment of the public, find our voice, individual and collective, and let it be known to others than management, that we do exist, that we have not only a stake, but a moral responsibility, a sincere concern for everything which makes and keeps America strong and true to the principles of our founding fathers. No flippant question as to our identity is going to cause us to disappear or to 'lie down and play dead'."

Who Is the Public?

I, too, have often wondered who it is the politicians refer to when they talk of the "public." Certainly all of us are part of it. And what manner of people are we of this public today?

Are we a number of factions each serving our own ends; each demanding higher wages, special tax concessions or special government handouts for ourselves at the expense of our fellow countrymen, or are we truly the descendants of the rugged individualists who settled this country? They left relative comfort and security for a wilderness and founded a new country. I am sure they would never have conceived of a government guaranteeing their security. They believed that it was their responsibility to provide themselves with material security while at the same time supporting their new government, which was their servant and not their master. This premise again was based on simple common sense. No one could enjoy security by government edict in a rugged land full of Indians and wild animals.

Our forefathers who met on May 14, 1787, to draft a Constitution for our new country were practical men. They wrote a very simple document. It gave the Federal government limited but necessary powers. It was designed to serve the many but to preserve the responsibility and the freedom of the individual. The first Congress adopted 10 amendments to the Constitution, which have become known popularly as the Bill of Rights. The Tenth Amendment states:

> "The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively or to the people."

An examination of today's budget containing so many state and local assistance projects shows a marked departure from the common sense approach of the Bill of Rights which placed the responsibility for local matters on the states and on the people themselves. To be sure, the Tenth Amendment was drafted to prevent the Federal government from interfering in our private lives, but we cannot accept Federal funds and subsidies without the control or pressures which inevitably accompany them.

Early Americans knew that wealth which had not been created could not be redistributed. Again, this was simple, plain, everyday common sense. We can't have more by producing less. It will take a good, honest, solid day's work by all of us at every level to win this economic war we are fighting.

I am afraid that too few people realize the difference between our system and that of the Russians. The State decides what funds must be set aside as capital for growth. Priorities are accorded these needs so that the necessary materials and manpower are channeled into the production of new capital goods. A minimum of consumer goods is produced to satisfy the basic wants of its people. Since the State is the sole employer, it controls the total amount of wage and salary payments so that they do not exceed the production of consumer goods provided in the over-all state plan. This is a simple way to prevent inflation, but it completely disregards individual choice as to what shall be produced in the marketplace.

The American economy was based on a different concept. We are free to spend our disposable income as we see fit. I am referring to what we have left after we have paid our taxes and for our shelter, food and clothing. If we spend it all on current consumption, or if the government takes too large a share, there are insufficient funds left to maintain an adequate rate of capital growth and investment. Our society requires self-discipline by every individual if there are to be savings or investments. It also requires governmental policies which curb unnecessary expenditures so that taxes do not divert an inordinate share of our national income to non-productive use and policies which preserve the value of our savings through the prevention of inflation.

Taxes Equal One Third of Income

The budget the President submitted to Congress last January estimated receipts of $77.1 billion. These are the receipts which cover the operating budget, but this tells only a portion of the story. In addition, trust fund receipts are estimated at $20.5 billion. These include social security, railroad retirement, and similar taxes which are not included in the regular budget. In other words, the American public will be expected to pay $93.5 billion* into the Federal Treasury in the fiscal year starting July 1. This is 26 percent of the national income.

To ascertain the true cost of government, we must also consider the taxes levied by state and local governments. The most recent estimate for 1960 is found in a study Prof. Otto Eckstein of Harvard University made recently under the auspices of the Committee for Economic Development. It estimates state and local receipts for 1960 of $38.2 billion. So for 1960 we can expect a total cost of government—Federal, state and local—which will reach nearly $132 billion, or somewhat over a third of our total national income.

Some years ago an eminent Australian economist, Colin Clark, said that no country could permanently withstand the diversion of more than 25 percent of its national income into the public sector of its economy and still maintain a private enterprise society. I am sure he is right. But I would add that all of us as citizens don't need an economist to tell us a truth such as this. Our common sense tells us that it must be true; that if we let government become too big, do too much, the result must be as former Pennsylvania Senator Martin said recently, "Government has only what it takes from the peo-

* About $4.1 billion represents intragovernmental transactions, excess of interest accruals over payments, etc.

ple in taxes, and a government which gives the people everything they want will soon take everything they have."

But why will our total costs of government for 1960 be $132 billion? Is it the cold war we are facing? Is it investment to beat Mr. Khrushchev at his own game, military or economic? Is it costing more and more to do this?

In 1954 total costs of Federal, state and local government were $97.5 billion compared to the $132 billion forecast for 1960. So government is certainly costing more and more.

But defense spending, including foreign aid, in 1954 was $48.6 billion. In 1960 it is budgeted at $47.9 billion, so it can't be military.

As a matter of fact, Federally and locally, the increases in spending over this six-year period, and they total $34.5 billion, are entirely in areas unrelated to the present international tensions. Moreover, the total of all non-defense government expenditures for 1960 will be more than four times greater than the total cost of all government in the most costly year before the start of World War II.

Recently I wrote a number of senators and congressmen in areas in which Koppers operates. I asked for their candid opinions on chances for balancing the President's budget. Many of them were skeptical. Many stated their position and views at length and described the problems they face in holding down costs.

'Needs of the People'

In substance the majority strongly favored budgets no larger than needed to provide for adequate defense and "the needs of our people."

In that phrase, "the needs of our people," I suspect there may lie the seeds of inflation.

I wonder if it takes committees and economists to ascertain whether we have not confused needs with wants; are not rushing ourselves into national bankruptcy by satisfying the "wants" instead of the needs, and of certain groups of our people instead of all of us?

I wonder whether our uncommon weapon—common sense—can't save the day any time we pull it out of storage and use it?

Doesn't common sense suggest that *Life* magazine was right recently in a vigorous editorial which said we simply have to face the simple fact that, wealthy nation as we are, we can no longer continue paying out $7 billion a year more to farmers than the crops they raise can be sold for?

Doesn't common sense suggest also that there is no sense in the Federal government collecting $2 billion in taxes from the people and then giving it back to the states as public assistance; or giving away another billion to veterans for pensions and programs which have nothing whatever to do with war or death, or wounds or illness caused by it?

Or, as suggested in a recent CED paper, that cuts in other areas such as public housing, soil conservation, stock piling, grants in aid to states and localities, loan insurance and development of natural resources could well be made at a time like this when truly needed items are demanding so much?

Nor are governments the only targets on which we might train the sights of our uncommon weapon.

Article after article on Russia; speaker after speaker who has been there all tell us the same story: that Soviet government, management (which is the same thing) and labor, all are dedicated today to one goal—constantly increasing production of goods—that a tremendous propaganda machine is successfully convincing every Soviet worker that he or she is a key participant in the Russian drive to catch up with and beat the United States.

Doesn't common sense fairly scream that if a free people are to defend themselves against these people whose rulers are urging them on in an economic war against us, we must be as united as they, but with the strength of a free people, not a driven people?

If so, what are the true strengths of a free people?

Many years ago William J. H. Boetcker, a clergyman and lecturer on industrial relations, provided a common sense formula which can guide us as well today in our decisions as it could then. He said:

> "You cannot bring about prosperity by discouraging thrift. You cannot strengthen the weak by weakening the strong. You cannot help the wage earner by pulling down the wage payer. You cannot help the brotherhood of men by encouraging class hatred. You cannot help the poor by destroying the rich. You cannot establish sound security on borrowed money. You cannot keep out of trouble by spending more than you earn. You cannot build character and courage by taking away man's initiative and independence. You cannot help men permanently by doing for them what they could do for themselves."

These common sense moral truths apply today just as much as they did 50 years ago.

If you and I and all Americans, as laborers, teachers, preachers, managers, legislators will apply the simple common sense of Dr. Boetcker's formula to our actions in business, in our personal lives, and in our requests of government at all levels, we will need to have no fear of Mr. Khrushchev and his economic offensive.

Nor will we need any longer fear an even greater menace—the gradual giving away by all of us of our freedoms in exchange for assistance, comfort, security or whatever easy thing we are seeking.

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Another Method of Treatment for Accounting and Rate Making Purposes

Liberalized Depreciation for Income Tax Purposes

By Cortis N. Rice, Jr.
Operations Controller, Northern States Power Co.

SEVERAL compromise methods have been suggested for the treatment of liberalized depreciation and there is yet another which I have been thinking about for some time, but which so far as I know has not been tried. In fact, I am not aware that anyone has given it any serious consideration. I believe it may have some merit.

Customers, Company Benefit

With the use of this method the customers would have the cake but the company would be permitted to partake of it. Two thirds of the total benefit would go to the customers and one third to the company.

Under the assumption of a 50 percent tax rate with the use of the flow-through method and by reducing rates to give the customers the full effect of the tax reduction it is possible to reduce rates so that the customer actually would obtain twice the actual tax reduction and the company would still have the same net return as before the rate reduction. Taxes are reduced not only because of the increase in depreciation expense but also because of the decrease in revenue.

The compromise plan which I propose for consideration is to give the customers, by reduced rates, the actual amount of the decrease in taxes due to the use of fast depreciation.

If this is done there will be another reduction in taxes equivalent to 50 per cent of the reduction in revenue, or 50 per cent of the reduction in taxes and this would accrue to the company. This procedure would result in substantially reduced costs to customers and also provide a very real benefit to the taxpayer which Congress apparently intended. It could be argued, and very strongly I think, that after a two-to-one distribution such as this, the company should be free to use the proceeds to its own benefit as it chooses.

After having decided upon the initial step there would be several alternatives available to the company for the use of the proceeds. If it could be agreed that there is no deferment in taxes it would be reasonable to add the company's portion of the savings to its current return. As applied to the company's portion this is the flow-through method, but it has the advantage over the complete flow-through method of compensating the utility for the risk associated with the greater consumption of the depreciable tax base, which base is, economically speaking, a real asset. After the plan had been in effect for five or six years it would improve the rate of return by perhaps as much as 5 percent. If the company has given two thirds of the benefit to the ratepayers under the premise that there is no deferment in taxes then it seems quite logical that it be permitted this slightly increased return and it is completely justifiable because of the additional risk assumed.

With this plan the tax saving available to the company is no different than other earnings that belong to the company and could, of course, be added to the depreciation reserve, if needed, in accordance with the Wisconsin method,* or it could be used for economic depreciation, or for other items of expense.

Under this principle the company would normally require revenue sufficient to cover only one half the increase in taxes over those required by straight-line depreciation when depreciation becomes lower for each vintage of property because the difference would be netted against all tax reductions from subsequent years' installations.

Perpetual Tax Saving Seen

The flow-through advocates maintain that with a growing company the tax reductions will always exceed the tax increases, and there will be a perpetual tax saving. The normalization advocates maintain that there is a future tax liability that should be recognized. The proposed method should satisfy the flow-through advocates by passing the tax saving resulting from accelerated depreciation to the customers, and yet, if the company's portion of the tax reduction and its accumulated earnings are retained in surplus, it will be (except for short life property) sufficient to pay the increased taxes when depreciation is less than by the straight-line method without an increase in

(*Continued on page* 240)

* The Wisconsin method provides for a charge to depreciation expense and credit to depreciation reserve (in addition to depreciation computed on a straight-line basis) equal to the deferral of Federal income taxes resulting from the use of liberalized depreciation.

Looking over the program of the 12th Annual Meeting of the EEI Purchasing and Stores Committee in St. Petersburg, Fla., May 4-6, are, from left, standing: H. T. Simpson, Boston Edison Co.; W. N. McClelland, Consumers Power Co., M. O. Myers, Philadelphia Electric Co. Seated, from left, are: F. M. Reinhold, The Connecticut Light & Power Co.; M. O. Maples, New York State Electric & Gas Corp.; D. E. Nesbit, Duquesne Light Co. More than 300 attended.

Purchasing and Stores Committee Holds 12th Annual Meeting

Dangers of Inflation, Centralized vs. Decentralized Purchasing, Materials Control Management Discussed

THE dangers of inflation in our economic race with Russia, the merits of centralized and decentralized purchasing, materials control management and salvage of scrap materials were among the subjects which received major attention at the 12th Annual Meeting of the EEI Purchasing and Stores Committee in St. Petersburg, Fla., May 4-6.

The meeting, attended by 318 members, manufacturers and guests, had as its theme, "Better Materials Management Means Improved Utility Performance."

George H. Cole, Manager of Purchases, Alabama Power Co., and retiring Chairman of the Purchasing and Stores Committee, addressed the first session. R. B. Gear, Commonwealth Edison Co., Vice Chairman, Purchasing, and H. T. Simpson, Boston Edison Co., Vice Chairman, Stores, presided at the meeting.

Fred C. Foy, Chairman and President of Koppers Co., Inc., in his address, "Common Sense—Our Uncommon Weapon," warned that inflation was Khrushchev's secret weapon in Russia's economic battle with the United States. He asserted that common sense was the best defense against inflation and, therefore, the best defense against the Russian economic threat. (See page 231.)

W. Y. Cottom, Manager of Purchasing, West Penn Power Co., in a panel discussion on centralization vs. decentralization of purchases, said that good managers give recognition to the advantages of both methods and that each system should be custom-built to meet each company's need. (See page 239.)

In his luncheon address on May 4, W. C. MacInnes, President, Tampa Electric Co., told the meeting that in this day of continually rising prices, salvage of scrap materials and the resulting revenue are of increasing importance to the electric industry. Urging that a constant vigil for salvage be kept in electric utility companies, he said this is one of the best ways to help combat the increasing costs of necessary materials. "As the prices increase for the items you buy for your company, in like manner will prices increase for the scrap materials you have to sell," he explained.

Mr. MacInnes listed seven suggestions for purchasing agents: don't rush; don't be different just to be different; don't be afraid to make a mistake; don't think every order has to be the biggest; don't insist on being the first to order a new or improved product; don't "go to sleep" in this fast-changing world; don't be fooled by manufacturer advertising or fast-talking salesmen —let the product speak for itself.

In every aspect of life—either personal or business—it pays to think and plan ahead, Mr. MacInnes declared.

Inventory Control Management

W. N. McClelland, Consumers Power Co., moderator of a panel discussion, listed the following objectives involved in inventory control management:

- Maintain an orderly flow of material to assure meeting construction and operating program schedules.
- Maintain proper distribution of materials between storerooms.
- Control the addition of new items and maintain records.
- Locate and recommend disposal of surplus stock material.

Mr. McClelland reported that after the installation of a machine system for stores accounting in his company, there was a saving of 500 man-hours per week in this area in less than a year.

Three principal objectives of the stores and control and accounting system of Mr. McClelland's company were listed as follows:

- Provide current information to both stores control and to the storerooms so that they have the knowledge to do an adequate control job. This was accomplished by:
  1. Design of a stock status report for use in stores control. This report contains all the required information for adequately controlling the material.
  2. Design of a storeroom transaction report and a division storeroom transaction ledger to replace both the records that had been maintained in the storeroom and the general accounting department.
- Centralization of all stores accounting. This included:
  1. Establishment of one set of accounting records which would serve all requirements of the general office and divisions.
  2. Establishment of procedures and policies that provide for uniformity in field reporting.
  3. Speedy preparation of reports so that information would be a basis timely enough to be used for control decisions.
  4. Utilization of the efficiency and speed of modern punched-card equipment.
- Furnish additional information for other interested departments. This included:
  1. Reports which furnish a break-down of construction and maintenance costs for various jobs.
  2. More complete analysis of costs for plant accounting.

Buying-stores cooperation improves the over-all efficiency of the utility's operation, C. L. McCamey, The Cleveland Electric Illuminating Co., told the meeting.

Suggestions offered by the Purchasing and Stores Committee after it had completed a survey of electric utility companies on purchasing habits, were presented by Mr. McCamey as follows:

Transportation and handling costs: The answers to the questionnaire repeatedly showed that transportation, handling, receiving, and intra-company transfer costs were far down on the list of factors considered in determining the most economical methods of providing material at the right place at the right time. This area needs increased emphasis.

Material testing: Only three companies reported that test cost was a consideration in determining how much to deliver at one time and where to deliver it. Actual cost of each test performed will point the way to elimination of some unnecessary operations.

Practical packaging: Packaging is a major area where buying-stores cooperation can return some important dividends. Only one-third of the reporting companies mentioned any work in this area beyond acceptance of EEI-NEMA standard packages. Some form of packaging program should be developed by each company considering the end use and the user operation, handling, breakage and deterioration problems and including a feed-back system to insure that handlers and users are getting what they need to improve their efficiency.

Forecasting material requirements: Better forecasts of material requirements must come before optimum control of units and dollars can be achieved. Forecasts of kilowatt-hour sales must be interpreted into poles, insulators, cutouts, cross arms, etc.

The ordering system: Requisitioning of like items on a predetermined schedule for extended periods of time (12 months) with deliveries based on engineered economic order quantities will improve the over-all efficiency as follows:

- Predetermined schedules can be developed jointly and will effectively level out the work-load, in both Purchasing and Stores, thus permitting a better job of control and buying.
- Requisitions covering extended periods of time permits the control or buying job to be done once instead of four or six times. This reduces costs, improves vendor relations and gives better assurance that material will be delivered on time. This also permits Purchasing to take advantage of marketing conditions as they develop.
- Economic order quantities should be employed by everyone since they reduce costs by providing the optimum investment. While E. O. Q.'s include consideration of past annual use, its prime function is to evaluate all the cost of acquiring the inventory against the cost of carrying the inventory. This is not a monster. The formula is relatively simple. It will eliminate the errors

R. B. Gear, second from right, of Commonwealth Edison Co., emphasizes a point at the EEI Purchasing and Stores Committee Meeting in St. Petersburg, Fla., May 4-6. Clockwise, are: R. L. Leach, Georgia Power Co.; J. N. Keating, Oklahoma Gas and Electric Co.; J. P. Blumer, Gulf Power Co.; Mr. Gear; and W. Y. Cottom, West Penn Power Co.

resulting from faulty judgment influenced by temporary monthly highs and lows in the use pattern.

R. L. Leach, Georgia Power Co., said that during 1957, $4 billion was lost due to accidents either killing or injuring people at work. Of this total, 25 percent of the accidents happened to people handling materials. Mr. Leach warned that complacency should never be allowed where safety is concerned.

"The watchword in safety," he said, "is constructive leadership, for this largely determines the stature of your organization."

"Evaluating Material Handling Costs" was the title of an address by M. A. Edwards, Stores Supervisor of Duke Power Co. Some of his experiences are related as follows:

- Sub-storerooms were placed on a cycle ordering basis (formerly the 35 locations had ordered at the beginning of the month, overtaxing clerical personnel, material handlers and trucking units), resulting in savings in labor and delivery costs and establishing confidence in the supply system.
- By the use of fork lift trucks equipped with adjustable forks, it is possible for one man to handle 90 percent of palletized materials, wire and cable reels without any assistance or without the operator removing himself from the driver's seat.
- By having vendors stencil company identification numbers on boxes, cartons and lagging of reels, receiving personnel may designate storage locations of materials immediately as they are unloaded from truck or freight cars and save time of rehandling.
- Where practical and economical it is preferable that incoming shipments from vendors be made in freight cars loaded in such a manner that unloading may be made by mechanical equipment exclusively.
- By the use of a simple locator system, a new materials handler may become productive almost immediately.
- With average-time records for drivers to make certain scheduled trips, it is easy to detect slowdowns and delays and to indicate on which end of the route they may occur.
- Manufacturers of materials on many occasions—for their convenience only—were making shipments from several locations and invoicing for an assembled product, expecting to evade the cost of assembly by having a stores man do the job. By strong opposition to such practices savings in handling resulted with no increase in cost of the product.

"We believe you must have data as to cost of handling material by non-stores personnel to measure efficiency of over-all handling methods and procedures," Mr. Edwards said. "Stores handling costs may look low but are no bargain if inadequate stores personnel or poor facilities lead to delays of our expensive line crews and construction personnel. We must strive to have at our command evaluation techniques in order to spot trends in rising costs early enough to do something about it."

A discussion on "Value Analysis" was delivered by W. J. Pierce, The Detroit Edison Co.; William Cannicott, Indianapolis Power & Light Co.; H. Wilson, Carolina Power & Light Co.; H. M. Barrett, Delaware Power & Light Co., and F. E. Baxter, Pacific Gas and Electric Co.

Mr. Pierce described value analysis as the analytical procedure for determining the best item, material or service to provide the function desired.

"Perhaps the most significant development that is taking place concerning the value analysis philosophy is the increasingly important role Purchasing is being assigned in the determination of what item to buy," he said. "This has taken place because Purchasing has lifted itself from the 'order placer' category to a professional status. One of the important reasons for this growth is that Purchasing has demonstrated its ability . . . to make very real contributions to cost reduction and improvement of a company's profit position."

George H. Cole, right, retiring Chairman of the EEI Purchasing and Stores Committee, is shown with W. C. MacInnes, President, Tampa Electric Co., at the recent Purchasing and Stores Committee Meeting in Florida.

Good Managers Recognize the Advantages of Both Centralization and Decentralization. The System Should Be Custom-Built to Meet Each Company's Need, Mr. Cottom Says

Centralized vs. Decentralized Purchasing Departments

By W. Y. Cottom
Manager of Purchasing, West Penn Power Co.

IT is my opinion that there is too much emphasis placed on the two terms, "centralized" and "decentralized" purchasing. I doubt that anyone could give a foolproof formula that could be applied in all cases.

I'm inclined to believe that one of the basic difficulties is the misunderstanding and confusion which exist over the terms "centralized" and "decentralized." A recent survey by the National Industrial Conference Board on Trends in Purchasing, as reported in *Purchasing*, pointed out that among the companies participating, no clear-cut definitions of these two terms were forthcoming. In addition, this same survey disclosed that not even the executives of these companies were convinced that they could recommend one method in preference to all others.

The proponents of centralized purchasing base their consideration on such items as:

- Large quantity buying resulting in savings in price, personnel, and improved control.
- Better coordination between operating units.
- Prompt initiation of management policies and direction.
- Prompt assistance from specialized staff departments.
- Lower operating costs and more efficient use of personnel.

Those who advocate decentralized purchasing claim:

- There is earlier recognition and response to changing conditions in field operations.
- It places the need and the authority to purchase closer together, thus providing better and quicker communications.
- Local purchasing authority satisfies the employee's human need to be recognized as one fully responsible for a specific task, rather than one more cog in a large organization.
- Buying at the point of use improves community relations of the local management.

It is important that these and other advantages of centralization and decentralization should be known and understood. What is more important, though, is the question, "How will the application of these advantages best serve the company's objective?" Which might read: to supply customers adequate and reliable electric service at the lowest rate consistent with fair treatment of employees, reasonable earnings and our obligations as a citizen in the communities we serve.

Today, purchasing is looked upon as a major function in a company's operations.

The purchasing executive's responsibilities are of major importance, because the procurement dollars spent for equipment, material, supplies, and services rank high in the over-all expenses of the electric utility company.

Maximum Profit Potential Sought

Management looks to the purchasing executive to administer the procurement function in such a manner as to create and maintain maximum profit potential.

It follows, then, that policies, procedures, and organization structure must be so designed and administered as to provide optimum support and contribution to the company's objective. As we strive to dispatch our responsibilities effectively and efficiently we must not lose sight of possible changes in our own organization structure and procedure that may increase our contribution to the over-all objective. Let us consider the company's objective mentioned before and see how the advantages of centralization and decentralization could best be used to help the customer, the employee, the stockholder, and the community.

The customer is basically interested in two things: the cost of electric service, and the contribution and support the company makes to his community and the

An address before the EEI Purchasing and Stores Committee Annual Meeting, St. Petersburg, Fla., May 5, 1959.

economic structure of the area in which he lives and works.

On the surface this would appear to be "double talk," for we would then have an obligation to purchase our equipment, supplies, and services as economically as possible while giving consideration to such things as quality of a product or service. It could also suggest that we spend a major portion of our procurement money in the territory in which we serve in order to maintain or increase its economy. These are not necessarily compatible.

It does point out, however, that if we centralize some of our purchasing, and thereby take advantage of a savings through volume buying, we are in part contributing to one part of the company objective—service at the lowest rates—for we must watch operating costs. Another point in favor of centralization as it relates to adequate and reliable service to the customer would be the availability of both assistance from specialized staff departments and the opportunities of better coordination between operating units. To the end that we can allocate some of our purchases to communities in our service area, we are, of course, helping to maintain its economic standard.

The stockholder is also interested in our contribution in the matter of holding down operating costs. Here, again, centralization seems to be the answer not only for savings resulting from volume buying, but for its contribution to lower internal purchasing costs. This, unquestionably—in the end—will help to retard increases in commodity prices. For example: if a company had 14 operating districts, each manned with adequate personnel to perform the purchasing function of its district, the added cost could amount to approximately 14 times the procurement costs of the activity were it centralized. It would mean also that manufacturers' representatives would have 14 additional calls to make, which is added expense so far as the manufacturer is concerned and, ultimately, could contribute toward increased product price.

The fourth factor in this company objective is the employee. He is interested not only in wages and working conditions, but in prestige. It's surprising the number of employees who would like to be buyers, and if we could motivate them to better performance and contribute toward their ego by allowing them to purchase the necessary day-to-day items, actually the increased cost to the company for this procurement would be negligible. Some companies' experiences have proved that the transferring of responsibility for the purchase of minor items for the field organization resulted in more economical procurement and improved employee performance by motivating them to do a better job. Decentralization might cover the normal day-to-day and emergency needs, and the securing of services, such as printing and miscellaneous small construction or maintenance contracts.

This would give recognition to one of the advantages to decentralization: placing the need and the authority to purchase closer together, thus providing better and quicker communications. Second, the local purchasing authority would help to satisfy the employee's need to be recognized as one fully responsible for a specific task, rather than being a cog in a large organization. It would help to satisfy the customer who is naturally interested in improving his community's economic standing, and it basically gives local management the opportunity to improve community relations.

It would seem, then, that there can be no best structure except that which meets the requirements of a particular company. Stating it another way, the structure should be custom-built to meet the need.

Good managers, in dispatching their five basic responsibilities of planning, organizing, directing, coordinating, and controlling, give recognition to the advantages of both centralization and decentralization, and at the same time avoid the disadvantages of either extreme. This should result, then, in purchasing being a custom-built function, with policies and procedures developed and administered to the end that they provide optimum contributions toward the company's basic objective.

Liberalized Depreciation for Income Tax Purposes

(Continued from page 235)

revenues beyond that required when using straight-line depreciation on each vintage of property. As long as there is any uncertainty as to the permanence of the law or the growth of the company, the retained tax reductions would be insurance against having to raise rates higher than if straight-line depreciation had been used.

Further Modification Considered

This leads to consideration of a further modification of the method which would completely avoid the increase in rates when the depreciation expense ultimately becomes less than that under the straight-line method. If the tax reduction were to be retained by the company and compounded with interest, it would accumulate to a sum sufficient to absorb the increase in taxes when such increase takes place. If the accumulated deferral is not deducted from the rate base then the interest increment could be obtained from the net return. If the accumulated deferral is deducted from the rate base then the interest increment would have to be obtained as a part of operating expenses.

All this may seem quite academic because neither the basic method nor any of its possible variations is now being used. However, much more can be said in its favor. My main purpose is to show that the methods which have been used do not include all of those which could be used, and that we can profitably devote some further study to the general subject of liberalized depreciation.

An electric appliance float parked in front of the county building in Marion, Ohio, called attention to the All-Electric Kitchen Carnival held in the city from April 3 to April 11. The carnival was a huge success.

All-Electric Kitchen Carnival

THE All-Electric Kitchen Carnival sponsored by Ohio Edison Co. and *The Saturday Evening Post*, April 3-11, in Marion, Ohio, was very successful.

During the eight-day promotion in this city of 35,000 people, 12 dealers sold 236 major electrical appliances compared to 111 appliances sold during the corresponding period of 1958.

EEI Supports Carnival

The carnival theme was part of EEI's national-local promotion to increase the sales of electrical appliances for better electrical living. EEI sponsored a two-page, full-color advertisement featuring "better kitchens today . . . the all-electric way" in the April 4 issue of the *Post*. The Marion, Ohio, carnival was timed to coincide with the appearance of this ad.

Radio station WMRN, *The Marion Star*, and dealers, distributors and manufacturers cooperated with the sponsors of the promotion.

Ohio Edison and the *Post* shared the cost of the opening page for the special All-Electric Kitchen Carnival newspaper advertising section. Promotional coordinators were provided by both the magazine and the electric company. Special display material, a home economist group, supporting advertising throughout the promotion period, and prize awards for the best All-Electric Kitchen window displays were among the services provided by Ohio Edison.

In addition to alerting appliance manufacturers to the opportunity of participating in the promotion, the *Post* provided display materials for participating dealers, prize awards for various sales incentive contests and a mailing piece for direct mail advertising.

Ohio Edison reported that sales of traffic appliances increased 50 percent during the promotion and that sales of major appliances increased nearly 300 percent. The promotion concentrated mostly on the major appliances, where the greatest profit is realized.

The traffic count in the 12 dealers' establishments for the eight-day promotion was 31,800 people, compared to 4,758 people for a normal eight-day period.

Among the 12 dealers was one who had planned to go out of business but decided, as a result of the carnival, to continue his electrical line of endeavor. Another dealer sold five electric ranges during the promotion, as many as he had sold during nine months of the previous year.

Seminar Held

For two days prior to the carnival, Ohio Edison held a regional seminar on the National Electric Living Program with EEI committee members and Ohio Edison staff personnel attending.

A film of the highlights of the Marion, Ohio, Carnival produced for *The Saturday Evening Post* were shown at a Baltimore NELP seminar which was May 26-27. This seminar was sponsored by Baltimore Gas and Electric Co.

A two-page reproduction of this photograph of an exhibition Medallion Home leads off the 30-page electric industry ad which will appear in the Sept. 14 issue of *Life* magazine. The special section will tell the benefits of all-electric living.

EEI, Manufacturer Allies to Sponsor 30-Page Ad in Sept. 14 Magazine

$1,000,000 All-Electric Living Ad to A

A 30-PAGE, $1,000,000 advertising section sponsored by EEI and its manufacturer allies in the Sept. 14 issue of *Life* magazine will be the keystone of the most concentrated promotion of all-electric living in the history of the electric industry.

Four million pre-prints of the ad, the biggest ever scheduled to appear in *Life*, will be made available to EEI members for distribution as part of their local promotion campaigns. This special advertising section is designed to advance the industry's Medallion Home program—sponsored locally by electric utility companies which certify new and modernized houses as meeting prescribed electrical standards.

The Live Better Electrically program has reported that 70,000 new homes last year qualified as Medallion homes and that in 1959 an estimated 10 percent of all new homes will receive the Medallion award for excellence.

The ad has been scheduled to coincide with National Home Week when millions of potential home buyers will be visiting model homes all over the country. It will be the high point in EEI's National Electrical Living Program promotion of 1959 and will serve as the logical climax to the continuous, concentrated advertising in national magazines, trade magazines and on prime-time and daytime television shows.

Nine editorial type pages on the greater livability of Medallion Homes will be included in the ad. Large, *Life*-type illustrations and easy-to-read copy will tell the advantages of all-electric appliances, full HOUSEPOWER and Light for Living.

Electrical manufacturers' product display advertising will be used in 14 of the pages. Manufacturer ads are scheduled by Frigidaire, General Electric for its lamps and appliances, Hotpoint, Owens-Corning Fiberglas, Wiegand, Whirlpool, Westinghouse for its lamps and appliances, Kelvinator, Sylvania and Kennecott Copper.

This joint effort is expected to benefit all segments of the industry—manufacturers, utilities, builders and dealers.

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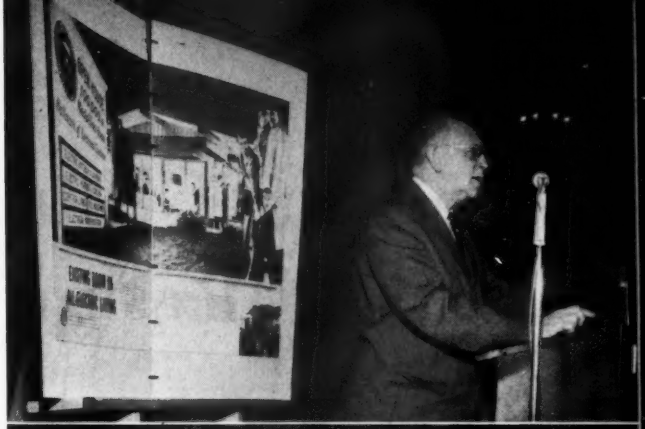
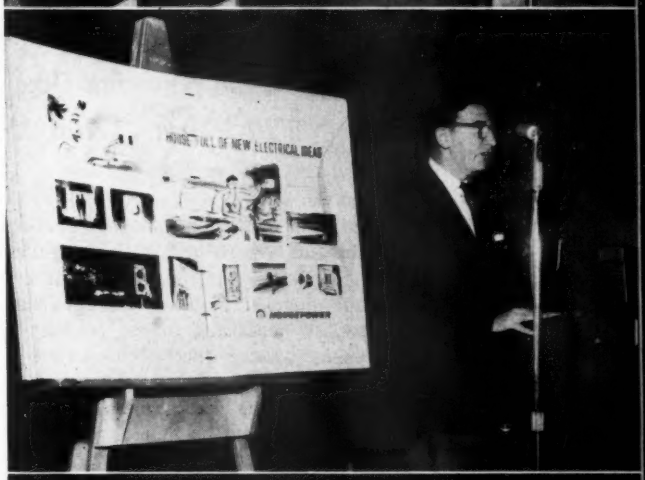
ving.



At a *Life* magazine press conference, the 30-page special advertisement which will appear in the Sept. 14 issue of *Life* was described by EEI and allied representatives, right, from top to bottom, George W. Ousler, Chairman, EEI Electrical Living Policy Committee; Joseph Miller, Managing Director, NEMA; R. E. Ingmire, Manager, Industry Activities for the Live Better Electrically Project, and Leonard Frank, Treasurer, National Association of Home Builders.



Because of *Life's* huge audience—an estimated 32,000,000 readers—more than one of every five people in the nation is expected to read the ad section. This will be the first time the industry has been unified on a promotional basis.

The advertising section will begin with a two-page spread with a large photograph of a family entering a model Medallion Home. The headline announces an "Exciting Boom in All-Electric Living." A smaller picture in the lower right corner shows the house the couple later bought, a "more modest home; the same electrical excellence because of Medallion standards."

The next two pages will be devoted to manufacturer advertising. The following page, another institutional ad, highlights pictures of a family in its first day of all-electric living. Opposite this page is another manufacturer ad, followed by the continuation of the pic-

to Appear in 'Life'

torial history of the family's first day of electric living. Next is another manufacturer ad.

Two pages then are devoted to the EEI All-Electric Laundry Festival. Following two pages of manufacturer ads is an institutional, editorial-type ad headlined "New Life for an Older Home." This shows how a 30-year-old house was modernized so the family could Live Better Electrically.

Two-and-one-half pages of manufacturer advertising follow, then a half-page Institute ad. Next is a full page devoted to "New Ways to Control Climate," with photographs and text featuring convenience of all-electric heating and cooling. After a page and a half of manufacturer ads, the heating-cooling story is continued and then another manufacturer message appears.

Light for decorating is explained in a full page of pictures and text and is followed by another manufacturer's message. The next two pages are devoted to EEI's Light for Living program. Nighttime drawings

(*Continued on page* 246)

Are You Getting a Full Measure?

By E. J. DeChambeau
Manager of Methods Engineering
West Penn Power Co.

A Good Set of Man-Hour Standards Will Help Achieve Proper Staffing and Knowing How Long It Should Take to Do a Job Will Help to Tailor Manpower to Actual Workload

A PROBLEM faced by managers and supervisors everywhere is that of how to utilize to the fullest extent time which has been purchased by our employer and placed at our disposal. Not only our own time but the time of others, so necessary to the conduct of the business, yet so easily wasted and, all too often, so woefully unaccounted for.

Time, like death and taxes, is inescapable. It is our most perishable commodity, cannot be stored, and comes in non-returnable capsules. If not put to use the instant we have it, it is gone forever. And what an expensive item it is! Over a period of years, one employee in excess of actual requirements means a needless expense of hundreds of thousands of dollars.

Losses Are High

A chart available from the Cincinnati Time Recorder Co. shows that a company with 500 employees, earning an average of $2.50 per hour, loses over $50,000 a year if only five minutes of time are lost daily by each employee. Most of our companies are much larger, hence the waste would be proportionately greater.

I prefer to think of this potential in a positive sense. In my company, for instance, in lines work alone, an improvement of five minutes per day means a saving of over $35,000 per year. We have room for improvement in this activity, since less than half the time available for work (the whole day less bad weather, sick time, etc.) is put to direct productive use.

I do not mean to infer that our employees are deliberately loafing or holding back; rather, I believe the average person is willing to produce at a much higher level than he now does but is prevented from doing so by many factors beyond his control. Such things as poor planning, loose scheduling, over-manning and obsolete equipment often make it impossible for a willing worker to produce a full day's work. I maintain that most people are happier in their jobs when they have sufficient work to do which will allow them to produce a day's work of which they need not be ashamed. In fact, sometimes the less people have to do, the more they complain.

The problem, as I see it, is that the supervisor ordinarily has little idea of what constitutes a fair day's work. We have not supplied him with tools of supervision which allow him to determine if his employees are performing in a satisfactory manner. This is particularly true in our own industry. Traditionally, utility companies have shied away from scientific measurement of human effort. The use of stop watches is practically unheard of. Even rough measurement via pocket watch or wall clock is made only to a limited extent, and then usually in a furtive, or even apologetic manner. Granted, most of us are careful to see that our people start on time, don't run over the lunch period, and quit on time —but what about the eight hours in between? Do we *really* know if they are put to effective use? Frankly, I'm afraid most of us don't. We are prone to look upon performance standards as something "nice to have," but "too hard to come by."

Really, I don't know what there is to be afraid of! Properly handled, a good work measurement program will actually improve employee relations. In our own experience we have not had a single complaint about work measurement activities, and we have been at it for several years. The important thing is to be honest with your employees—tell them exactly what is going on—and why! Show them how we *all* benefit from a work measurement program. You may be surprised when you find out how many actually *like* the program.

Paradoxical Situation

This reluctance to measure value received for labor dollars expended is paradoxical when we consider the preciseness with which we measure other important economic factors of the business. Millions of dollars have been spent for meters, scales, gauges, calculators, electronic computers and the like, in an effort to bring more precision and economy into the operation. In fact. it would be well-nigh impossible to operate our companies without such precise measurement.

Consider also our daily lives—we are all slaves to time.

An address before the National Conference of Electric and Gas Utility Accountants, Chicago, Ill., April 21, 1959.

TABLE I—DAILY TIME SAVING NEEDED TO JUSTIFY EQUIPMENT COST*

Weekly Salary:	$58	$68	$77	$87	$96	$106	$115	$125
Annual Salary:	$3000	$3500	$4000	$4500	$5000	$5500	$6000	$6500
Equipment Cost	*Necessary Minutes Per Day Saving to Justify Expense*							
$ 100	3	2	2	2	2	2	2	1
$ 200	5	5	4	4	3	3	3	3
$ 300	8	7	7	6	5	5	5	4
$ 400	11	10	9	8	7	6	6	6
$ 500	14	12	11	10	9	8	8	7
$ 600	16	14	13	12	10	10	9	9
$ 700	19	17	15	14	12	11	11	10
$ 800	22	19	17	16	14	13	12	12
$ 900	25	22	20	18	16	14	14	13
$1000	27	24	22	20	17	16	16	15
$1100	30	26	24	22	19	18	17	16
$1200	33	29	26	24	21	19	19	17
$1300	35	31	28	26	23	21	20	19
$1400	38	34	31	28	24	23	22	20
$1500	41	36	33	30	26	24	23	22
$1600	44	39	35	32	28	26	25	23
$1700	46	41	37	35	30	27	26	25
$1800	49	43	39	36	31	29	28	26
$1900	52	46	41	38	33	31	30	28
$2000	55	48	44	40	35	32	31	29

* This table will be helpful in weighing the economics involved before pur chasing a new machine or piece of equipment. This evaluation gives the savings in man-minutes per day that will offset the purchase price. It should be noted that no real dollar savings will be accomplished through the purchase of new equipment, regardless of the potential savings, if no new or additional work is available to fill the minutes saved.

Daily time savings (in man-minutes), necessary to offset the purchase price, are indicated in the table. The cost of the equipment is listed in amounts from $100 to $2000. Across the top of the table are the weekly and annual salaries of the employes whose time must be saved.

Table data are based on 250 eight-hour work days or 2000 man-hours per year. The following factors have been included to make the time values realistic—depreciation, insurance, taxes (52 percent income and other), interest on bonds and return on investment. Time in minutes includes an allowance to cover employee fringe benefits.

For the daily time savings required to offset equipment cost, for other than the 10-year period shown in the table, multiply the number of minutes in the table by the appropriate factor below.

Depreciation Period: Years	Factors	Depreciation Period: Years	Factors
20	.77	7	1.20
15	.85	6	1.31
10	1.00	5	1.46
9	1.05	4	1.69
8	1.11	3	2.07

Without the alarm clock and the appointment book, we would be lost. In fact, we regiment our personal lives to a much greater extent than we sometimes realize—certainly more than we are willing to regiment our working hours.

Operating costs can be reduced substantially—by balancing personnel to work load. This is equally true in the office, shop or field. Ask any reputable consultant. He will tell you, for instance, that most offices have from 20 percent to 30 percent "fat" built into the organization, a good slice of which can be trimmed, once its presence is detected by a sound work measurement program.

The foundation of any work measurement system is a set of standards. To be useful, these standards (or yardsticks) must fully describe all the operations which must be performed in order to complete the prescribed job.

Most of us are too willing to take the easy approach, that is, to depend on historical records. These are useful, of course, but I suspect that in most cases, we are merely compounding a felony. The better approach to sound man-hour standards lies in the use of time study. Random work sampling is also a very useful technique. In addition, some companies have been very successful in setting standards through the use of predetermined times supplied by outside consulting firms.

The job of developing and maintaining man-hour standards is not easy, particularly if they are to be used for varied purposes such as estimating, planning and cost comparison, as well as performance rating. However, it is worth the trouble. I do not believe in change just for the sake of change. One should expect to accomplish some improvement—like the musician who switched from the violin to the piano. When asked why, he replied, "My beer kept sliding off the violin."

Once you have good standards, however, you will wonder how you ever got along without them. How else can you properly evaluate the effect of procedures changes, methods improvements, mechanization, work simplification programs, etc.?

As an example, we have found Table I to be very useful. It shows how many minutes must be saved daily to justify the purchase of a new piece of equipment. Remember, though, *work measurement* is necessary in order to determine whether these minutes actually will be saved.

A word of caution: while you should not be afraid

to establish standards, don't make the mistake of "experting" a program into existence. Your people need to know what your objectives are and how they, too, will benefit from the program. By all means, get the first-line supervisor into the act. Don't set standards for his people without his prior help and approval.

Supervisor Needs Work Measurement

Remember, the supervisor *needs* work measurement so he can achieve proper staffing. Overstaffing is difficult to detect, since people will do the work assigned to them, spreading it over the allotted period of time without showing any semblance of idleness. Many an old-time supervisor has had his eyes opened wide when he participated actively in a work measurement program.

A word of caution: while you should not be afraid many of the questions which you must face each day. For instance, as supervisors, once you know how long it *should* take to perform the various jobs under your control, you can do a better job of tailoring manpower to the actual work load. New equipment can be analyzed, and the need justified with much more precision than ever before. Proposed systems changes can be studied to establish whether they will actually provide the economies they appear to promise. And, of course, don't overlook the value of performance ratings, both group and individual, which may be obtained with confidence through the application of a good work measurement system.

As specialists in one particular phase of accounting, you will find that standards which have been established through work measurement are very helpful. The budget accountant will be able to make more realistic forecasts. Overruns and underruns will be much easier to analyze and explain. Why not set up man-hour budgets, based on anticipated work loads? Let's tell the man-hours where to go—not wonder where they went.

The plant accountant will be helped through more accurate reporting of plant items. This appears as a by-product of better reporting at the source. A line foreman, for instance, will be less likely to overlook items of material installed, once he realizes that failure to report them has an adverse effect on the performance record of his crew.

The general accountant will find that standards provide a firm basis for proper distribution of labor charges to FPC accounts. If the standards are correctly set, such a distribution will be more accurate in the long run than one made by the supervisor at the job location. Think about it for a moment. It's a tough job for a foreman to sit down and figure out *exactly* how many man-hours to charge to the various accounts involved in the activities of his crew for that day. Most foremen try to do a good job, but the most we can expect is a "guesstimate."

The Auditor's Role

The auditor, of course, relies heavily on established policies, plans and procedures. In some organizations he is responsible for appraising the quality of performance of others. Reliable man-hour standards are the only means I know of for fulfilling this obligation. A performance index is easily calculated by dividing standard man-hours earned by the net hours available for standard work.

$1,000,000 All-Electric Living Ad to Appear in 'Life'

(*Continued from page* 243)

of the winning house designs in the student architect's contest are shown opposite the page announcing the new EEI-sponsored Light for Living Medallion Home contest which will offer prizes valued at $100,000.

HOUSEPOWER Ad Featured

Another manufacturer ad precedes a three-page layout featuring "A House Full of New Ideas to Help You Live Better with Full HOUSEPOWER." Another manufacturer ad and a summary of all-electric living benefits complete the section.

Life will put its own merchandising machinery into motion behind the all-electric promotion. Full-page *Life* ads have been inserted in the *New York Times*, the *Chicago Tribune* and the *Wall St. Journal*. An entire issue of *Life's* "Model Home Merchandiser," which is distributed to 12,600 dealers and builders, will be devoted to the all-electric message.

A six-page dealer ad has been scheduled in a July issue of *Home Furnishings Daily*, and a full-page ad in the July *House & Home*. Continuous publicity and a 25-foot accordion-fold display of the *Life* section also will be used to draw attention to the industry ad.

The ad will inaugurate a series of local action programs by electric utilities and their trade allies to put across the idea of all-electric living.

The National Electric Living Program and *Life* have prepared a folder "A Question for the Home Builder: What Do They Want from You?" designed for the electric utility representatives calling on builders. It contains many sales points to interest builders in the Medallion Home program. The booklet in the folder covers some of the basic facts about the trend toward electrical living, EEI's NELP plans, the 30-page *Life* ad and the sales aids that are available for Medallion Home promotion.

10th Annual Commercial Electric Cooking Conference

Coordinated National Leadership Program Urged to Help the Electric Industry Capture Its Fair Share of the Commercial Cooking Market

THE vital need for a coordinated national leadership program to help the electric industry capture its fair share of the commercial cooking market was emphasized at the 10th Annual Commercial Electric Cooking Conference in Chicago, May 12.

R. L. McCuen, Commercial Sales Manager of Duke Power Co., and Chairman of the EEI Commercial Cooking and Water Heating Committee, addressed the conference, and an address of welcome was made by T. G. Ayers, Vice President of Commonwealth Edison Co. J. L. Beaver, Pennsylvania Electric Co.-Metropolitan Edison Co., presided.

George Asks Program

E. O. George, Vice President of The Detroit Edison Co., and Chairman of the EEI Commercial Division Executive Committee, urged that a national program of advertising and publicity be adopted to provide a common promotional theme which will give recognition and prestige to the concept of commercial cooking electrically.

"We want our customers to understand that cooking electrically is not a novelty but an accepted way of doing the job better," he said. Warning that national programming by itself is no cure-all for the electric cooking problem, he advised salesmen to become marketing men rather than salesmen alone.

Mr. George pointed out that customers are in one of three categories: those going into newly built quarters; those (the older customers) who are planning to remodel and replace equipment; and those going along "the same old way," relying on old equipment and usually using competitive fuels. Each category offers good customer prospects, Mr. George said, but not necessarily from the same point of view.

In the case of the customer with the new building, a complete layout is required and offers the opportunity to acquire an all-electric customer—heating, cooling, water heating, cooking and lighting, because adequate wiring can be provided, he emphasized.

"You may first have to sell the architect who, in turn, will influence the customer. . . This is no easy job. This is hard work which can offer considerable personal satisfaction," Mr. George told the conference.

In the case of the established customer, service should be emphasized, not cost, Mr. George said. He recommended that costs be evaluated on the basis of what the customer is getting for the money.

To give the customer the type of service that will insure his satisfaction with the use of electric cooking equipment, Mr. George offered the following suggestions:

- Be certain that the requirements of customers are carefully analyzed and that recommendations are such that they fulfill the customer's needs.
- After the equipment is installed, it must be checked and the customer advised of the correct operation.
- Adequate and efficient repair service should be made available to the customer.

Of the three recommendations, Mr. George pointed out that adequate and efficient repair service was of most importance. "When the customer is unable to get repair service, he will seriously consider buying other equipment and that often means equipment using competitive fuels."

To overcome this problem, Mr. George stressed that any area where electric cooking equipment is promoted actively must have an established repair service center with properly trained repairmen and an adequate supply of repair parts. He added that it is unimportant whether this service is provided by an organization authorized by the manufacturer or rendered by the electric utility.

"The important thing is—this service must be available and it must be fast and efficient," he said.

Defining the over-all policies of customer satisfaction as the cooperative responsibility of the manufacturer, dealer and utility, Mr. George declared that each has a very definite share in the electric cooking business and that each must work in close cooperation with the other if the promotion of the electric cooking business is to be successful.

New Design Innovation Urged

A. A. Mesko, Supervisor of Customer Relations for the Hotpoint Co., said the electric cooking equipment manufacturers are not creating enough new business through new product design and innovation. He pointed out that there seems to be a tendency to copy equipment and very few new ideas in cooking concepts are forthcoming. "When all manufacturers improve existing equipment," he said, "progress in this field of commercial cooking acceptance will be greatly accelerated."

Mr. Mesko also advised a manufacturer promotional program aimed at pre-selling the customer, in cooking

shows, demonstrations and various other road shows.

He recommended that new and expanded markets be sought for electric cooking, including in-store baking, in-plant feeding, taverns and inns and school lunch programs.

G. F. Oates, Sales Manager of Vulcan-Hart Corp., associated with gas equipment for more than 60 years, explained why his firm entered the electric cooking equipment field. "We believe in the continued progress of this industry," he stated, "and there is no predictable certainty as to what its limits will be during the next decade."

Expressing a belief that the demand for equipment will increase as operators become more aware of the net profit dollar, he said Vulcan-Hart's investigations had revealed that "the sleeping giant of the commercial electric cooking industry had awakened (and had) enjoyed a rapid growth, with a great potential for future growth."

Mr. Oates said that after a start slower than had been anticipated in 1958, a last-quarter surge was experienced, and that first quarter sales of electric cooking equipment for 1959 ran ahead of those for the last quarter of 1958.

Selling New Markets and Products

By A. A. Mesko
Supervisor, Customer Relations, Hotpoint Co.

BUSINESS is again becoming the salesman's domain. And with it is returning the need for knowing very specifically what the customer wants and the why and when of his buying motivation. This is both a challenge and an opportunity. The need, too, for us to work more closely than ever before with each other was never greater than it is today.

I have asked myself some serious questions as to what the electric cooking equipment manufacturers are doing to support the electric utilities in reaching our common objectives. What can we, more united than ever, do to meet the challenge of our times?

First of all, let me light a bomb under my personal segment of the industry. It appears that the electric cooking equipment manufacturers are more concerned with taking business away from each other than in making plans in taking it away from the gas industry. We are simply not creating enough new business through new product design and innovation.

Research costs money, but it is an investment in our future. A very large appliance and apparatus industry, for example, is doing 50 per cent of its current business in products not even in existence 10 years ago.

We, as an industry, should look at the problem this way: no piece of equipment in existence today should go unchallenged. Heat is an ingredient and the size, shape or form of the machine is simply a detail, after you have started with the basic idea. Equipment design should incorporate, within itself, a functional improvement that returns to its purchaser an upgrading of his operation. We have done this in the past and it can be done again.

There seems to be a great tendency to copy equipment. Very few new ideas or so-called radical cooking concepts exist. Some doctors are still testing Camels, but not all of our available scientists are at Cape Canaveral. When all manufacturers improve existing equipment, progress in this field of electric commercial cooking acceptance will be greatly accelerated.

One of the ways in which our industry could be more helpful to your industry would be in the field of customer relations. Ours is a unique kind of business. Our customer does not buy electric service in a paper sack at the supermarket. Service is only being sold when a customer makes use of his equipment. If it isn't functioning, nothing is being sold. On the other hand, it is being unsold when quick and dependable repairs are not available.

Even though the danger element does not exist in electric cooking, we should be guided by a truer sense

An address before the 10th Annual Commercial Electric Cooking Conference of Edison Electric Institute, Chicago, Ill., May 12, 1959.

The Electric Industry Should Search for New Markets for Commercial Cooking Applications and Sell Them with Imagination and Enthusiasm, Mr. Mesko Advises

of customer relations in effecting improved product service.

All electric cooking manufacturers should conduct field and factory training for utility and dealer personnel. This should include training in the gas counterpart of their equipment. When this is being done on the scale that is necessary, we will really be selling against gas and creating new business. More and more dealers are becoming all-electric in their thinking and selling.

What about promotional activities in the field aimed at pre-selling the customer, in cooking shows, demonstrations and road shows of varied types and kind?

This should be a must for every major manufacturer because in this manner most of the customers can see what's new in the field of commercial cooking appliances. Not all of our customers can come to the national, regional or state shows.

Highly Effective Demonstration

Some far-sighted utilities have purchased trucks and station wagons in which an effective display of equipment is brought to the customer's door for demonstration or exhibit. This is highly effective and should be expanded.

Our plan should include the searching out of new markets. How many utilities have considered the ever-expanding chain store market as a great possible potential in the field of commercial cooking? This was explored at some length some time ago and would bear out considerable optimism for this field. Primarily, I am referring to in-store baking.

Results of only one chain in Michigan are most encouraging. Several years ago this chain discovered that it was only selling about 200 frozen pies per week from the store freezers. It was persuaded to install some trial ovens and to bake the pies, right in view of the customers. Needless to say, this was an immediate success. Bake ovens are now in 30 stores and more than 100,000 pies per month are being sold. From our interest, this chain has more than 800 kw connected, a nice little piece of business, any way you look at it. And from this, a great number of other chain markets have indicated interest.

What about in-plant feeding? I have visited many such establishments over the country. The industrial electric load may be as much as 25,000 kw connected, yet on my visit to the kitchen, the cooking appliances are gas-fired. The labor-saving devices such as mixers, choppers, peelers, slicers, are all electric, yet someone failed to sell management on electric cooking.

I hear about Medallion Homes, Medallion Farms. What about a Medallion in-plant establishment?

What about the many thousands of taverns and inns in the country that could add to their revenue with up-front cooking? Many electric cooking equipment manufacturers have a complete line of counter cooking devices that would do wonders for this by-passed potential.

The new developments in food technologies makes it unnecessary to have a cook to turn out good food. From the freezer to the fryer or grill and to the customer in a matter of minutes—this could be a great salvation for many tavern owners who need to develop additional revenue. In some of my earlier jaunts around the country, when we sold a 3½-kw fryer, we were real jubilant. The market for small appliances is still with us so it should not be neglected in favor of the big ones. We sold about 150,000 of these in 10 years, many of which are still in operation.

Many utilities maintain a stock of counter appliances from which they conduct their demonstrations or use for trial installation. There is no better way of selling than letting the customer use a device so that he can find out how it meets the demands of his business. And this opens the door to additional devices, as time goes on.

The school lunch program continues to expand with the building of schools. Even though this already is a lucrative market, we should not be complacent. Remember, even though we do not have an explosive population growth as compared with some countries, we are growing at a considerable rate, and we will build schools at even a faster rate, if the challenge from abroad continues to alarm us. For that reason, the attention to the school market must be continuous.

The opportunities for growth of the commercial electric cooking load are great but unless they are capitalized upon by the hiring and training of adequate salespeople, they will not fall to you automatically. And by training, I do not mean so-called "Jericho salesmen" who expect the customer to fall down after they have blown their horn seven times. The commercial load is a 12-month load and attention to it must be on a 12-month basis. I am grieved by 90-day campaigns and a slackening of the follow-up which is so necessary to get the sale. Just about the time the campaign gets momentum, it is over and attention is directed to something else.

Self-Confidence Sells

You must radiate self confidence in this business to sell anyone. A half-hearted attempt simply won't do.

Looking at this business of on-fire enthusiasm, despite any magnificent thinking, it is hard to come up with a really new idea. What you have to do to sell them is to re-energize them. Spark them up so that the people listening to you catch fire the same as you.

That's the kind of action that you want. The attitude that is necessary is that you have to be sold on the idea yoursef. If you aren't on fire with it, don't try to set anybody else on fire with it. Good salesmen of ideas transmit that fire as if it were a fuse and the other party begins to catch fire too. If you would do it, too, you will have to believe that you possess the necessary natural resources.

Suppose you want to sell commercial cooking load, the best load in the business. Let's drive that point home. Don't forget the words of the old minister who was talking to pre-ministerial students. He said: "Boys, when you're talking about heaven, let your face light

(*Continued on page* 254)

First Step of Heat Storage Research Program Completed

Progress Report by Joint AEIC-EEI Heat Pump Committee

A DESCRIPTION of the heat-storage research project being conducted under the auspices of the Joint AEIC-EEI Heat Pump Committee and as authorized by the Executive Committee of the Association of Edison Illuminating Companies and by the Board of Directors of the Edison Electric Institute was given in the July-August, 1958, EEI BULLETIN. A method for improving the annual load factor of heat pumps and resistance heating systems which offers considerable promise is reducing electric peaks of the heating load by means of heat storage on customers' premises.

The first step in this program was the engagement of Battelle Memorial Institute and of Comstock and Wescott, Inc., on March 31, 1958, to determine the status of heat storage development and to analyze the potential applicability of various heat storage materials for use in conjunction with the heat pump and resistance heating.

The first phase of the project has now been completed by these two organizations and reports have been submitted to the Joint Committee.

It is apparent from the reports of the consultants that the subject was covered quite throughly; the whole field of chemistry and physics was surveyed and appraised; and the state-of-the-art as found in the technical and patent literature was investigated, evaluated and summarized. The recommendations and conclusions of the consultants as to the areas of greatest promise and their look into the future as to the most likely paths that future research should follow reflect the results of their intensive investigations. Their findings indicate clearly that there is no ready-made solution, no easy way out; the safe, small volume heat storage apparatus requiring only "design engineering" was not discovered. Both reports indicate that only through considerable research and development work can the desired objective be attained. The Committee believes, however, that the findings of these organizations will provide the necessary orientation toward which future activities on heat storage research should be directed. To quote Dr. Comstock, "If the end result is important enough to the industry to warrant the effort, I would like to 'bet' that the initial ideas will evolve in time so as to yield a more satisfactory result than can now be foreseen by anybody."

Report by Battelle Memorial Institute

Battelle's report indicates that high-temperature storage, charged with resistance heating properly controlled, offers the most immediate promise as a means of smoothing load curves with either heat pump or other electric-heating systems. Their second choice is condenser-side storage charged by the heat pump. Evaporator-side storage charged with "free" heat is placed third.

For high-temperature storage, the most promising media indicated in the report appear to be fused salts and refractory oxides. For condenser-side storage, the most promising material which permits the utilization of heat of fusion is indicated to be the paraffin waxes. However, the report notes that present prices for commercial waxes make their use for this purpose uneconomical. For evaporator-side storage, both the sensible heat and heat of fusion of water is suggested.

Table I, which is abstracted from this report, compares the volume of selected materials needed for storing one million Btu. The volumes are for materials only and do not include provisions for associated apparatus, necessary insulation, and voids in the storage media required for heat transfer.

The research program recommended by this consultant encompasses engineering and initial economic analyses of heat storage systems and the study of materials and their utilization for high-temperature storage. These two phases, the report suggests, would provide a firm basis for detailed planning of the remainder of the program which they outlined.

The report further emphasizes that the application of heat pumps for heating residences is certain to grow as the demand for year-round air conditioning increases. It also states that the resulting electrical load characteristics under the present practice of using supplementary resistors will not be favorable from the view point of electric utilities when substantial saturation of heat-pump usage is achieved. The use of heat storage offers considerable promise in increasing the load factor of residential heat pumps. It also points out that equipment manufacturers may not have sufficient incentive to undertake research and promotion of heat-storage systems, and, therefore, the initiative for the necessary research and development must continue to come from the electric utility industry.

Report by Comstock and Wescott, Inc.

Comstock and Wescott's report recommends that future research and development work which might be expected to yield a practical method of heat storage be directed to the simultaneous study of three classes of systems which seem the most outstanding of the wide range of phenomena investigated plus a study to increase the effectiveness of insulation in order to reduce its volume. It selects from each class a specific system

TABLE I—COMPARISON OF VOLUME OF MATERIALS NEEDED FOR STORING IN STORAGE SYSTEMS SELECTED BY BATTELLE

Storage System and Materials Considered Most Suitable	*Useful Temperature Range – F*	*Approximate Material Volume (Cu Ft per Million Btu)*
Evaporator-side System		
Ice/Water	15–70	84
Condenser-side System		
Water	100–130	530
Parafin waxes	100–130	210
High-temperature System		
Water	110–300	84
Ceramic Oxides		
(Magnesium Oxide)	110–800	26
Fused Salts		
(Sodium Nitrate)	110–800	20

which, for the moment, seems the most promising. In rating the merits of the various systems, the report indicates that the safety aspect and the space occupied in the house were weighted very heavily as compared with other considerations.

The three classes of systems which are considered by C and W to be the most promising are:

Heat of Hydration Systems. This class is one which utilizes the heat generated when certain substances are combined with water. They recommend starting with systems using calcium oxide (ordinary lime) and either liquid water or water vapor. Such systems are considered to involve little hazard and are among the smallest and lightest of the systems studied. Furthermore, regeneration may be accomplished by the use of electric resistance heating during periods suitable for a favorable load factor. The principal problem to be solved, they indicate, consists of preparing the calcium oxide in a physical form suitable to withstand continued regenerative cycles without deterioration.

Heat of Fusion Systems. This class is one which uses primarily the heat liberated when a suitable material changes from a liquid to a solid form. The report states that materials providing sufficient heat and occupying a sufficiently small volume require high temperatures. They specifically recommend studying a system using sodium hydroxide. This system would be charged with resistance heating under controlled conditions of electricity supply and would provide heat from fusion and allotropic change, as well as from sensible heat. The report indicates that this system has many advantages, among them being the relatively small space required, the mechanical simplicity, a minimum of development work, and an adequate safety rating if handled properly.

Heat of Chemical Change Systems. This class is one which uses the heat resulting from certain chemical reactions such as the reaction of hydrogen with the oxygen in the air. The report indicates that the heat of this reaction can be released in a controlled way without excessively high temperatures by passing air containing a fraction of a percent of hydrogen through a catalytic reactor which causes the hydrogen to combine with a small part of the oxygen in the air with the only resultant products being heat and water vapor. They suggest that the hydrogen be obtained through electrolysis of water or from a metal-acid reaction. The report recommends an experimental study of the hydrogen-oxygen reaction method, with particular reference to the storage of the hydrogen in the form of a metallic hydride such as magnesium hydride. C and W is of the opinion that this system has great promise but that storage of hydrogen in a metallic hydride is relatively new and will require extensive research. Furthermore, while the contemplated proportion of hydrogen and air in the mixture would be well within safety limits, the safety aspects of such a system would have to be carefully studied because of the inherent inflammability of hydrogen.

Table II, also derived from data in the report, shows several pertinent characteristics of the systems recommended by C and W for future research.

Since the heat storage systems of greatest interest involve relatively high temperatures for either short or long periods of time, C and W believe that research is needed in the field of insulation to reduce heat loss from the storage systems without the need for a large volume of insulation material as would be the case with the best known insulators of today. This consultant recommends undertaking a program of research in the insulation field, particularly in the area of vacuum insulation.

Other Materials and Systems Studied by Consultants

Both reports discuss in detail the systems recommended as most promising and, in addition, describe many other chemical and physical effects which might be used for heat storage. The favorable qualities and the probable difficulties in the use of various materials and methods are enumerated, analyzed and evaluated in a comprehensive manner. Attention is given to a number of less likely possibilities in an attempt to insure that nothing of value is overlooked.

Reports Available

A limited number of copies of the reports by Battelle Memorial Institute and by Comstock and Wescott, Inc., have been prepared. Upon request to the acting secre-

tary of the Joint Heat Pump Committee at the New York office of Edison Electric Institute, and as long as the supply lasts, one copy of each report will be made available to heads of accredited industrial or academic research organizations who indicate interest in pursuing the subject matter further.

Permission is granted to reproduce this article in technical publications, providing proper credit is given for the source of the information.

Future Research

Upon completion of the evaluation of these two reports, the Joint Committee will submit to the executive boards of the two associations conclusions pertaining to the feasibility of developing technically and economically acceptable heat storage systems for use with resistance heating or the heat pump. If warranted, detailed recommendations will be submitted for the establishment of a comprehensive research program with one or more selected research organizations over a specified period of time together with a cost estimate for the execution of the program.

Members of the Joint AEIC-EEI Heat Pump Committee are: Chairman: E. R. Ambrose, American Electric Power Service Corp.; Constantine W. Bary, Philadelphia Electric Co.; C. M. Boardman, Duquesne Light Co.; H. F. Carr, Baltimore Gas & Electric Co.; B. A. Dmitrieff, Consolidated Edison Co. of New York, Inc.

Also, P. R. Dwyer, The Detroit Edison Co.; R. F. Forbes, Indianapolis Power and Light Co.; E. A. Freund, Union Electric Co.; G. G. Freyder, Commonwealth Edison Co.; W. F. Friend, Ebasco Services, Inc.; T. W. Fuller, Pacific Gas & Electric Co.; E. L. Gates, Middle West Service Co.; H. S. Hinrichs, Kansas Power & Light Co.

Also, T. B. Knox, Virginia Electric & Power Co.; G. W. McElhaney, Ohio Edison Co.; J. W. Megley, Boston Edison Co.; G. M. Nash, Central Hudson Gas & Electric Corp.; C. H. Randolph, Wisconsin Electric Power Co.; Acting Secretary—G. S. Landrith, Jr., Edison Electric Institute.

Members of the Steering Committee for the Heat Storage Research Project are: Chairman—Constantine W. Bary; E. R. Ambrose and G. M. Nash.

New Rate Book Available

THE 1959 *Rate Book*, published under the direction of the EEI Rate Research Committee, is available from Edison Electric Institute, 750 Third Ave., New York 17, N. Y.

The book is a compilation of residential, commercial, industrial and certain special type rates for electric service furnished by investor-owned utility companies serving all communities in the United States with a population of 20,000 or more. This information also is listed for many smaller cities in states that would not be adequately represented under the 20,000 minimum. Rates reported in this edition are those in effect as of April 1, 1959, provided such rates were received by that date.

A listing of more than 6,000 communities of at least 1,000 population wherein rates have been reported to be the same as those applicable to larger communities are also included in the book.

The price of the 1959 *Rate Book* is $20.00 per copy to member companies and $30.00 per copy to others. To facilitate handling, it is suggested that those ordering the book specify No. 59-112.

Beckjord Honored

WALTER C. BECKJORD, Chairman of the Board, The Cincinnati Gas & Electric Co., has been awarded the honorary degree of Doctor of Laws by Xavier University in Cincinnati.

The citation, in part, read: "His public service has touched every aspect of life in this community. . . . As the dynamic head of a great utility, Mr. Beckjord has . . . had a profound influence on the development of the entire Ohio Valley as one of the greatest industrial areas of the world."

Mr. Beckjord who was recuperating from a coronary thrombosis at the time the award was made was unable to attend the ceremony. He was represented by his son, Walter E. Beckjord.

TABLE II—PERTINENT CHARACTERISTICS OF SYSTEMS RECOMMENDED BY COMSTOCK AND WESTCOTT, INC. FOR FUTURE RESEARCH

Class and Materials Recommended for Initial Study	*Temperature at Which System is Maintained*	*Approximate Volume (Cu Ft per Million Btu)*		*Heat Source*	*Relative Safety (see note)*
		Materials Only	*Incl. Insul. and Assoc. Equip.*		
Hydration					
Calcium oxide and liquid water	810 F	10.3	24.4	Heat of hydration and sensible heat	B
Fusion					
Sodium hydroxide	605 F	24.7	35.3	Heat of fusion and allotropic change plus sensible heat	B
Chemical Change					
Magnesium hydride	Room	9.3	23.0	Reaction of hydrogen and air	C

Note: Relative safety ratings used in report. (Materials having ratings A and D are not included in this article.)
A. Non-toxic, non-combustible materials at temperatures below that of boiling water.
B. Solids, or non-volatile liquids stored below the living level of house, at temperature not over 1,020 F.
C. Systems using combustible gases.
D. Reactive or toxic volatile liquids—hazardous.

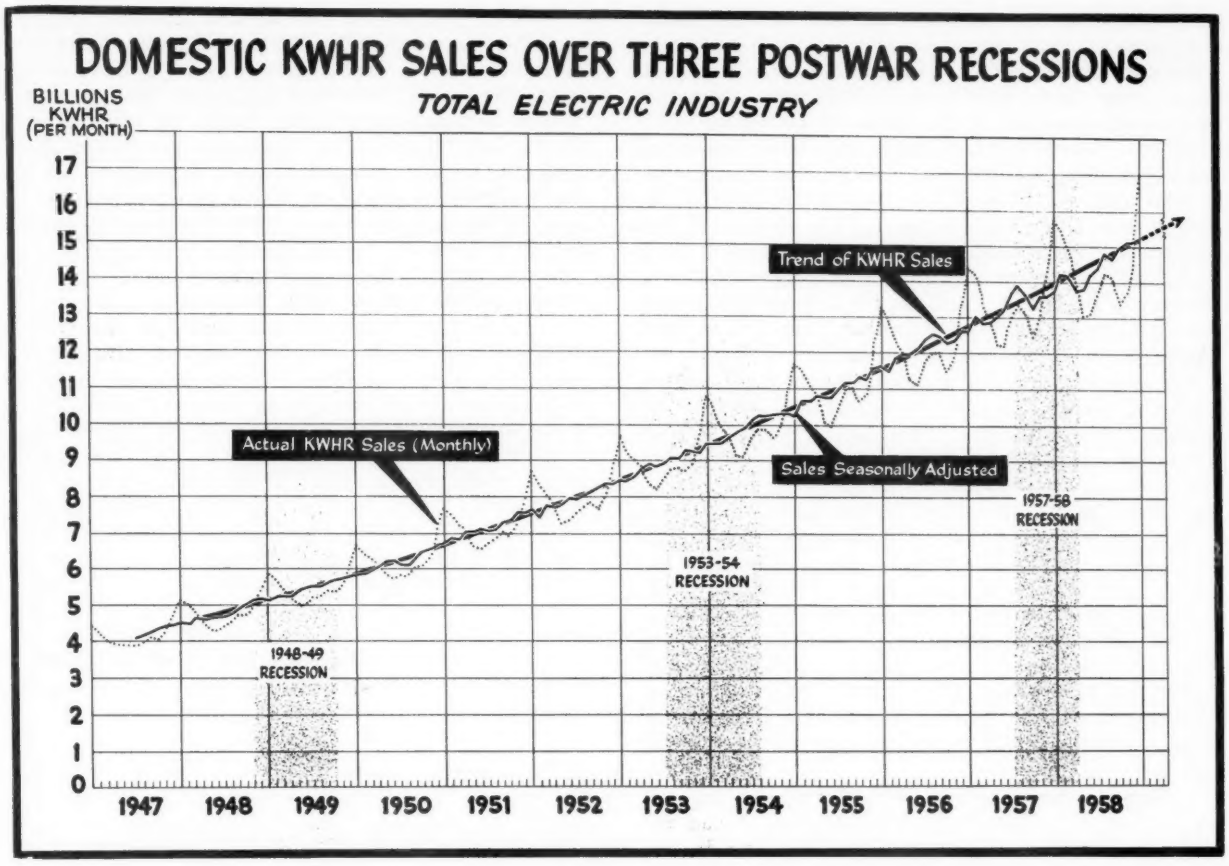


Figure 1

Domestic Kwhr Sales Over the Postwar Period

THE recent recession which adversely affected much of American business turned the attention of the nation's leaders to the subject of economic stability. In the electric utility industry, which came through the business decline in relatively good health, the stable character of the domestic (rural and residential) sector of the business was demonstrated once again. It was largely the aggregate demand for electricity by residential and rural customers that kept most utilities from being affected too severely by the recession. Domestic kilowatt-hour sales were the industry's built-in stabilizer.

Since 1947 residential and rural sales have increased 240 percent, moving up from about 50 billion to last year's record of 170 billion kwhr. Further, this component of total sales accounted for 44 percent of electric revenues in 1958; in 1947 domestic revenue was only 39 percent of total electric receipts.

But the real importance of domestic demand, at least from the business cycle point of view, rests in its strength during times of general economic decline. Other components of the electric business tend to fall off during recessions. This is particularly true for industrial sales. However, the state of business seems to have little effect on people buying electricity for their home use; indeed, sales tend to increase during business declines. This is demonstrated in the chart at the top of this page. (Figure 1.)

Here the three major postwar recessions are indicated by the shaded areas. The peak of economic activity to the trough of the recession, as defined by the National Bureau of Economic Research, are the areas depicted. Actual monthly kwhr sales to residential and rural customers are represented by the dotted line. The seasonal movements characteristic of this sector of the electric business, especially the growing magnitude of the summer load, can be seen. In addition to actual kwhr sales, the fine solid line represents monthly sales seasonally adjusted. Here one can readily see the steady movement upward of this class of business. The heavier solid

line about which the seasonally adjusted data fluctuates is a computed trend line.

An examination of business conditions discloses that the economy started into decline in November, 1948. By the time business activity bottomed out 11 months later, GNP had decreased 3.3 percent, industrial production was down 10 percentage points and unemployment rose to more than 4 million, 5.7 percent of the labor force. During this same period domestic kwhr sales, on a seasonally adjusted annual basis, steadily increased from 62 billion to 68 billion kwhr, an improvement of nearly 10 percent. In looking closely at the seasonally adjusted data for this period it appears that little, if any, sensitivity to the cycle was experienced.

The next major recession came after the Korean War, beginning in July, 1953, and working itself out by August, 1954—13 months later. As is typical, the general barometers declined. This time GNP fell about $10 billion on a quarterly basis, corporate profits after taxes were down by 16 percent and industrial production off from a high of 136 to 123 in August, 1954. Kilowatthour sales to residential and rural classes of service during this period increased once again. From July, 1953, to August, 1954, the period of the down-swing in general activity, domestic use rose from 106.8 billion kwhr (seasonally adjusted annual basis) to 120 billion kwhr, a 12 percent improvement in shortly over a year. Once more there was no positive correlation between this component of the electric industry sales and the main economic indicators.

Economists agree that the 1957-58 recession was the most severe of the postwar era. Actually, it had not only the sharpest but the deepest downswing in two decades. In July, 1957, industrial production reached a level of 145, but by nine months later had declined to 126, a decrease of 19 percentage points. Unemployment increased to over 5 million or 7.5 percent of the work force. And GNP declined, along with corporate profits, to substantially lower levels. By Spring, 1958, the down-hill journey was reversed. Yet during these dark nine months at least one area of business life actually improved: sales to domestic customers gained by about 12 billion kwhr (seasonally adjusted annual basis). What had been true for the first two postwar recessions was once again affirmed by statistics—no cyclical sensitivity in this part of utility business.*

The role of the residential and rural class of service is doubly important, for not only does it give relative stability to electric utilities over the business cycle but it also provides strong growth (secular) as well. The trend line presented in the chart shows the past pattern in striking relief and indicates what the future might bring. For example, if the computed trend line is projected 10 years into the future—the domestic class of service would then require about 371 billion kwhr per year, an increase of over 118 percent of the record sales last year.

This projection, of course, is only one possibility; many electric utility executives feel the domestic sector can be increased even further and there are plenty of arguments on their side which support such optimistic claims.

* This discussion does not imply that this area of the electric business is without its outside influences. The only point established here is a lack of positive correlation between domestic kwhr sales and the three postwar recessions. It is quite possible, as suggested by the experience of the '30s, that if the recessions were of a deeper and longer nature, then domestic sales would probably falter. As it stands now, the principal influence on residential and rural sales seems to be climatic, and some interesting correlations done by General Electric Co. of Pittsfield, Mass., between weather data and sales behavior recently have been brought to the Institute's attention.

Selling New Markets and Products

(*Continued from page* 249)

up and when you're talking about hell, your ordinary face will do."

I'm lit up about commercial cooking. I believe that our best years are ahead. This, too, has its parallel—Franklin Lloyd Wright, our famous architect, who just recently passed away after a fabulous career.

Here was a real rebel who left nothing unsaid about contemporary architecture. His career really began after he was 60 years old, and he made his mark on this passing parade. His influence on architecture is really only beginning now.

And I believe that our influence on commercial cooking equipment design is really only beginning now. For years we have turned out advanced products and seen our contemporaries follow our pattern.

Remember that every piece of equipment in existence should be challenged in terms of function. People who buy our goods are becoming more sophisticated.

A range doesn't have to look like a range; an oven doesn't have to look like an oven. Function is much more important. Modular kitchen equipment is a comparatively new development even though our industry has toyed with the idea for several years. The customers seem to like it. We hope to build it into the industry's best seller.

We have no common problem that cannot be solved by working together. But to put first things first, we have to try. The longest journey in the world starts with the first step.

Joined together in common purpose, we cannot be defeated.

We can take heart from a recent statement of the director of research for a large electrical equipment manufacturer who said: "Even in the most blue-sky prophecies, we find no indication, nor even hope, that there is a more useful form of energy than electricity." This fact provides the immovable, permanent stone on which the future progress of the industry will be built.

This is a scientist looking at our industry—an industry dealing with a force—electricity—which is indispensable to our civilization today and for as many tomorrows as anyone can see. We can accelerate our progress by attacking our day-by-day efforts with imagination and that essential quality called "enthusiasm." Let's generate this confidence when we talk to our customers. Let's generate new progress.

Meter & Service Committee Meeting

- *Report of AEIC Meter and Service Committee*
- *Statistical Application in Meter Testing*
- *New Scope, Re-organization of Committee*

F. A. SALMON
Chairman

APPROXIMATELY 90 members, correspondents, and guests convened at the Chase Hotel in St. Louis, Mo., April 27-29, for the joint meeting of the AEIC and EEI Meter and Service Committees. The meeting was devoted to the discussion of new developments in meters and metering equipment; development and review of joint industry standards concerning metering; presentation of subcommittee reports; and round table discussions on the engineering, economic, and operation aspects of revenue metering.

At the Monday morning session manufacturers described and displayed new types of meters, metering instrument transformers, and metering accessory equipment. On Monday afternoon the four subcommittees met independently to discuss their various subjects and formulate their reports. E. B. Hicks acted as chairman of Subcommittee I in the absence of T. J. Pearson; W. D. Lindsay conducted the meeting of Subcommittee II, Metering; W. H. Farrington, Chairman of Subcommittee III, Performance, moderated this session; and G. W. Gerell conducted the meeting of Subcommittee IV, Management.

Committee Welcomed

At a joint luncheon of the committees on Monday, Dudley Sanford, Executive Vice President of Union Electric Co., welcomed the committees to St. Louis. He congratulated the members and manufacturers for their continued efforts to obtain an accurate metering device at a nominal cost.

Mr. Sanford spoke briefly on the evils of inflation in our present economy. He pointed out that most people are inclined to accept inflation as something inevitable. He said it was the duty and responsibility of all to do what they could to stop inflation.

J. S. Lineback presented the 1958 report of the AEIC Meter and Service Committee. He traced the historical development of the electric meter and pointed out that even with the advent of atomic power there would still be a need for an accurate and economical electric meter. Mr. Lineback described developments in the field of automation in regard to routine shop testing of revenue meters and the efforts of the industry to find a more satisfactory and less expensive method of insuring the continued accuracy of revenue meters in service.

Sample Testing of Meters

J. A. Morris, C. V. Morey, and E. F. Blair presented reports on application of statistical methods to sample meter testing. Mr. Morris pointed out that the purpose of the application of statistical methods to routine meter testing was not primarily to effect a saving for the operating company but to provide the customer with better service at no essential increase in cost by concentrating efforts on those classes of meters which are most in need of close surveillance and adjustment or replacement. Both Mr. Morey and Mr. Morris stressed that all the statistical sampling plans were essentially in agreement but that the details of application were a matter for economic study for individual companies. Mr. Blair described in some detail a plan for sample testing developed by the New England Meter Engineers and the variation of this plan under study by the United Illuminating Co.

R. B. Swallow, Chairman of the task force for research projects, with G. W. Gerell and G. J. Yanda as members, reported that they had reviewed the items pertaining to metering submitted to the Research Projects Committee. He said it had been suggested that the subject of application of statistical methods to routine testing of revenue meters might be further studied as a research project under jurisdiction of the Meter and Service Committee.

S. B. Vaughn described and illustrated the use of ultrasonic equipment for cleaning of meter covers. He said considerable savings could be effected with a substantial improvement in the quality of the finished product and the speed of washing covers by use of ultrasonic equipment and a suitable solvent. He stressed the safety advantage inherent in using a mild chemical solution as opposed to continued use of strong detergents.

W. J. Piper discussed the effect of rotating the excitation on the second stator relevant to the accuracy of a multistator meter. He said it has been an established practice for many years to test multistator meters with a single phase source by placing the current coils in series and the potential coils in parallel; the test results have been within satisfactory accuracy limits. Mr. Piper advised that the compact design and high current capacity of modern multistator meters cause concern regarding their accuracy if they are tested on single phase sources and operated on polyphase circuits, unless the application of the single phase source is constantly controlled. Further research on the problem is being conducted by both manufacturers and utilities.

Chairman Salmon announced that a major revision of the scope and organization of the committees was planned for 1959-60. He said the four subcommittees would be known as Services, Metering, Performance, and Management with a suitable scope written for each. The subjects presently under study will be redistributed among the four subcommittees in accordance with their new scope. Copies of the proposed scope and organization were distributed to those in attendance for review and comment.

Higher Secondary Voltages

F. G. Josberger presented a report on the activities of the EEI-NEMA Joint Committee on Higher Secondary Voltages. This committee has pointed out that the 265/460 wye volt system has certain advantages for the supply of large commercial and industrial loads; the 240/480 volt single-phase system has advantages for residential loads; and the 240/416 wye volt system has advantages for area coverage

of mixed residential, commercial and industrial loads. The Joint Committee has not yet completed its final report.

O. K. Coleman, Consultant to the NEC Electric Light and Power Group, explained the important changes in the 1959 edition of the National Electrical Code. He pointed out that the 1959 edition will have a completely new format, the first general revision since 1947. This new edition will contain more than the usual editorial changes and, in addition, the regular revisions necessary to keep pace with the times—new materials, new methods, and the ever-increasing use of electrical energy for old uses and new.

The report of Subcommittee IV, Management, under the Chairmanship of G. W. Gerell, included the following presentations: Meter Shop Layouts by W. G. Patton, New Methods and Developments by R. W. Banks, and Cost of Meter Testing by F. G. Josberger. The problem of comparing the cost of the meter testing by the various operating companies is being followed closely by the task force consisting of F. G. Josberger, W. J. Piper and L. O. Steger; a questionnaire has been distributed and results are being analyzed and studied.

J. S. Lineback said there was considerable interest by the Customer's Accounting Committee in the subject of automatic meter reading. He described briefly three of the methods under study by this group and pointed out where, as all of them could probably be made to operate satisfactorily, none of them were economically sound at the present state of development. He advised that further study is being given to the problem and said he would keep the committee aware of progress.

The subject of inspection of metering equipment by local electrical inspectors was discussed by H. H. Koch as a result of an article which recently appeared in a trade journal.

A. D. Irion discussed the perennial question pertaining to use of company vs manufacturer's numbers for revenue meters and the use of meter history cards. Discussion disclosed use of either set of numbers was technically satisfactory and the choice depended largely on economics and local circumstances; the amount of information that is kept in meter history cards again is largely determined by local circumstances and official reports required.

J. P. Meadows asked how many companies purchase class 200 single stator meters exclusively (no class 100) and was informed that 25 companies represented follow this practice.

The report of Subcommittee II, Metering, under the Chairmanship of W. D. Lindsay included the following presentations: Low Voltage Current Transformers by G. B. M. Robertson; Standards for Watthour Meters, Part III, by L. C. Ramon; Revision of Part II of MSJ—10 by G. J. Yanda; Indoor Metering Potential Transformers by C. V. Morey; Revision of MS 1 by E. L. Keller; and Standard Secondary Ratio for 480-Volt Metering Potential Transformers by C. L. Hockman.

C. V. Morey led a discussion on the results of tests conducted by the Consolidated Edison Co. of N. Y., Inc., on open circuit voltage of the miniature current transformers used for revenue metering. He pointed out the open circuit voltage on these particular transformers was very low and therefore no necessity existed to use short circuit devices when sending them out for installation. The Committee was in agreement with the results of Mr. Morey's tests but it appeared practice followed by various companies differed in respect to use of short circuit devices.

The report of Subcommittee III, Performance, under the Chairmanship of W. H. Farrington, was presented. R. B. Swallow discussed the National Electrical Code and the National Electrical Safety Code. He said new revisions of each would be released in the near future. G. F. Austin and W. C. Harrison presented reports on meter performance pertaining to watthour meters and watthour demand meters. R. B. Swallow said the Code for Electricity Meters, ASA C-12, was at present under revision. F. A. Bell reported on trends in service requirements. G. A. Palmer informed the committee that the new edition of the *Electric Metermen's Handbook* would be directed at the working meterman and prepared primarily for his use as a convenient tool.

G. B. M. Robertson, Chairman of the AEIC-EEI-NEMA Joint Committees, advised the group on the present status of all joint standards. It appears nearly all are undergoing revision and are in the final state of preparation.

Prime Movers Committee Meeting

- *Visit to Dresden Atomic Plant*
- *Metallurgy and Piping Task Force*
- *Members of Research Projects*

V. L. STONE
Chairman

WITH power station design and operating engineers directing increasing attention to atomic power plants, the Prime Movers Committee selected the Commonwealth Edison Co.'s area, site of the new Dresden Station, for its 97th meeting.

The meeting was held at the Palmer House in Chicago, Ill., May 4 to 6. The program included a pre-meeting nuclear power session on Sunday afternoon, with representatives of General Electric Co., Bechtel Corp., and the host company discussing the development of the 180-mw, boiling-water reactor plant. A tour of the station on the afternoon of May 5 provided opportunity for the 113 members and guests attending the meeting to inspect the project at a particularly interesting stage of construction.

The plant is approximately 80 percent completed and preliminary oper-

ation is scheduled for late this year. Atomic power activities were concluded on the third day with a presentation by H. K. Hoyt, Dresden Station superintendent, on the organization and training of personnel for the new plant.

General sessions Monday and Tuesday mornings and Wednesday gave precedence to round-table discussion to allow consideration of the agenda of more than 110 topics. During the third day, however, attention was turned to committee business and activities with subcommittee, task force, and special project assignment reports being presented.

First Chairman Speaks

The group was welcomed on Monday morning by Murray Joslin, Vice President, Engineering and Construction, Commonwealth Edison Co. Alex D. Bailey, the first chairman of the EEI Prime Movers Committee, discussed the early history of the group. Mr. Bailey focused attention on the progress of the Committee by recalling activities following its organization in 1933. He noted his satisfaction in looking back upon his association with early-day members of the Prime Movers Committee.

Reports of subcommittee affairs were initiated with an announcement by the chairman that the Power Station Cost and Performance Data Subcommittee, disbanded in early 1957, had been reorganized with H. C. Schroeder succeeding E. C. Cawrse as chairman. The new subcommittee will undertake to up-date previous projects by the group on manpower requirements for the overhauling and inspection of boilers and turbine generators.

The primary purpose of the Air Pollution Subcommittee is to keep members of the Committee apprised of developments in this field of interest to the electric utility industry. Mr. Beattie reported on recent activities of the Air Pollution Control Association and the Air Pollution Committee of the ASME.

J. K. Bryan, Chairman of the Boiler Auxiliaries Subcommittee, submitted a progress report on the group's study of various schemes now being used for feedwater pumping and various feedwater heater arrangements. It is expected that this activity will result in a summary report to members of the Committee in the near future.

R. A. Baker, Chairman of the Boilers and Combustion Subcommittee, reported on a study underway on devices—presently used and proposed—to extract heat from steam station flue gas. Mr. Baker's group is also continuing its study of problems in connection with the use of lower heating value of fuel for power plant design and operating calculations.

In reporting on the activities of the Metallurgy and Piping Task Force, E. H. Krieg, Chairman, called particular attention to ASTM, ASA and other code developments of interest to the Committee. Mr. Krieg also reported on progress being made by research programs at the Engineering Research Institute, University of Michigan, under the direction of Dr. J. W. Freeman. EEI, on recommendation of the Prime Movers Committee, is assisting in the financing of metallurgical projects on stainless steel pipe welding failures and stainless steels for high temperature superheater and reheater service.

The pipe welding failures work has been undertaken because of the incidence of cracking adjacent to welds in stainless steel high temperature, high pressure main steam piping. The investigation of high temperature superheater and reheater materials has resulted from tube failures due to swelling and creep rupture.

One-Man Committee

The one-man Power Station Data Subcommittee accumulates data on new installations for members of the Committee. J. A. Lind reported on the status of this work. Since the project was initiated several years ago, information on approximately 350 units has been made available to Prime Movers Committee members.

The Prime Movers Committee is represented on the System Planning Subcommittee of the Electrical System and Equipment Committee by two liaison members, J. D. Williamson and G. P. Wilson. Mr. Williamson reported on the System Planning group's Feb. 18 meeting. He called particular attention to the subcommittee's interest in computer applications for utility engineering.

As the Committee reviewed the work of the Power Station Chemistry Subcommittee, special appreciation was extended to R. F. Andres, retiring Chairman of that group. Mr. Andres, who has served in this capacity for the past two years, is being succeeded by I. B. Dick. Vice Chairman for the coming year will be A. O. Blatter. W. R. Homan is the incoming Secretary. Mr. Andres summarized reports presented to the 58-man subcommittee at its April 20 to 22 meeting in Columbus, Ohio, by the various subcommittee sections. Included among the sections of the subcommittee are those concerned with corrosion, water treatment, lubrication, stream pollution, chemical cleaning, by-product utilization, instrumentation and other subjects with which power station chemical engineers are concerned. The subcommittee's next meeting is scheduled Sept. 28 to 30 in Salt Lake City.

Automatic Power Stations

W. Welch, Jr., Chairman of the Station Instruments and Controls Subcommittee, called attention to strides being made toward fully automatic power stations. A recent study by this group indicates that manufacturers of central information systems and automation equipment have reported orders from a number of electric utility companies to refine their present methods of operation. One station will be operated under full automation early in 1962.

V. F. Estcourt, Chairman of the Turbines and Condensers Subcommittee, reported continuing work on the subject of turbine and boiler availability and the causes responsible for unavailability. Mr. Estcourt's group has also undertaken a study project concerned with rate of load pickup. The Subcommittee has under consideration an investigation of practices regarding maximum load operation and associated factors.

Members of the Committee assigned to follow research projects sponsored by EEI or to which EEI contributes on recommendation of the Prime Movers Committee reported on developments in these programs. R. M. Van Duzer represents EEI on the ASME Research Committee on Properties of Steam. R. A. Baker is the EEI representative on the ASTM-ASME Joint Committee on the Effect of Temperature on the Properties of Metals. Mr. Baker also

reported for R. I. Smith of his company who represents EEI on the ASME Research Committee on Corrosion and Deposits from Combustion Gases. W. Welch, Jr., EEI member on the ASME Committee on Fluid Meters, reported on the research program under the direction of that ASME group.

T. M. Hotchkiss, who with P. M. Hartung represents the Prime Movers Committee on the Joint Research Advisory Committee steering the BCR-EEI-AEIC research program on sulphur removal from coal and flue gas contaminants control, reported on the work of these projects.

J. G. Miller has been assigned to maintain liaison on behalf of the Prime Movers Committee with the activities of the EEI Research Projects Committee. Mr. Miller discussed the work of the Research Projects group. Through this liaison association project proposals in the area of thermal electric generation which are brought to the attention of the Research Projects Committee will be referred to the Prime Movers Committee for evaluation.

With the advent of the 1959-1960 Committee year, V. L. Stone will be succeeded as Chairman of the Prime Movers Committee by T. O. Thompson. C. A. Dauber will serve as Vice Chairman.

Hydraulic Power Committee Meeting

- *Visit to Osage Hydroelectric Station*
- *Efficiency Measurements for Hydraulic Turbines*
- *Two Pacific Power & Light Projects*

K. O. STRENGE
Chairman

THE 1959 annual meeting of the Hydraulic Power Committee was held at Lake Ozark, Mo., May 11 to 13. Twenty-four members and guests attended the three-day session at the Arrowhead Lodge which is located two miles from the 172,000-kw Osage Hydroelectric Station of the Union Electric Co. The Bagnell Dam, providing storage capacity for this plant, has formed the Lake of the Ozarks—one of America's largest man-made lakes with a shore line of 1,375 miles and a main channel length of 129 miles. The dam and power plant were inspected by the group on the afternoon of the first day.

In the absence of the Chairman, occasioned by an emergency, G. J. Vencill, a past chairman, conducted the meeting. The round table discussion period, which occupied a somewhat greater period of time than at recent meetings, was under the direction of P. M. Lefever, also a past chairman. In addition to the numerous roundtable topics and the field trip, subcommittee reports and papers by members and guests resulted in a full agenda.

The session of the first day was opened by Bruce James, Superintendent, Osage Plant, and Manager, Lakeside District, Union Electric Co. After addressing the group, Mr. James introduced R. J. Shaidnagle, Executive Director, Lake of the Ozarks Association, Inc. Mr. Shaidnagle provided an interesting orientation to the local area by discussing the Lake of the Ozarks region and reviewing its rapid development over the past several years.

Committee business activities were initiated by the presentation of a number of technical reports. C. H. Hancock, Director, Hydraulic Laboratory, Newport News Shipbuilding and Dry Dock Co., in a paper entitled "Some Details of the Instrumentation and Operation of the New Pump-Turbine Test Facility of the Newport News Shipbuilding and Dry Dock Company," discussed the more unusual characteristics of this test facility, particularly as they apply to instrumentation.

Guest Speaker

Another Committee guest, R. S. Quick, Consulting Engineer, The Baldwin-Lima-Hamilton Corp., presented a paper entitled "210,000 HP Turbines for the Lewiston-Niagara Development of the Power Authority of the State of New York." In his talk Mr. Quick noted interesting details of the 13 hydraulic turbines that with twelve 28,000-hp reversible pump-turbines will provide a total installed capacity of 2,190,000 kw at the Lewiston site.

On invitation of the Chairman, W. J. Rheingans, Manager Hydraulic Development, Allis-Chalmers Manufacturing Co., discussed new developments in design and construction of hydraulic turbines. Mr. Rheingans' presentation directed particular attention to reversible pump-turbines, vertical impulse wheels, rotary valves, fabricated runners, field welded spiral castings, T-1 steel for welding casings, and development of a dynamic balancer for balancing turbine runners.

In another interesting discussion Mr. Rheingans described an experimental program undertaken to determine correlation between turbine blade trailing edge contour and von Karman vortex trails. A moving picture accompanying Mr. Rheingans' discussion illustrated the relative magnitude of energy loss due to various trailing edge shapes.

R. D. Ley presented a paper detailing experiments undertaken at Dolby Hydro Station in Northern Maine to determine the effectiveness of plastic steel for the repair of cavitated water wheels. Under certain conditions this material was found to provide suitable temporary repairs.

Poirson Thermometric Method

Prof. L. J. Hooper, Director, Alden Hydraulic Laboratory, Worcester Polytechnic Institute, discussed efficiency measurements for hydraulic turbines by the Poirson thermometric method. This test method, witnessed by Prof. Hooper in France, allows efficiency determinations to be made by a careful measurement of water temperature entering and leaving a hydraulic unit. Prof. Hooper also dis-

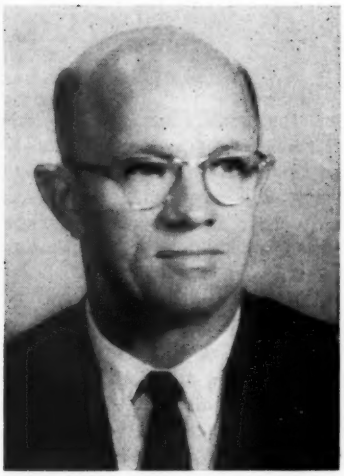
(*Continued on page* 260)

People in Power

GEORGE S. DINWIDDIE

GERALD L. ANDRUS

W. O. TURNER



G. C. RAWLS

GEORGE S. DINWIDDIE, President of New Orleans Public Service Inc., has been elected Chairman of the Board, and GERALD L. ANDRUS, Vice President, was elected President of the company. CLAYTON L. NAIRNE, Vice President in Charge of Operations, was elected Executive Vice President; PAUL F. HOOTS, Assistant to the President, was elected a Vice President; and FRANCIS J. LABANCA, Assistant to Vice President, was elected Comptroller.

Mr. Dinwiddie, a member of the EEI Board of Directors, is a graduate of Tulane University with a master's degree in business administration. He was employed by Public Service in 1936 as tax and research clerk. He served the company as executive office assistant, budget director, head of the budget and statistical department, economist, and vice president, prior to his election as president. He is acting president of the New Orleans Tidewater Development Association; president of International House; director of Greater New Orleans Inc. and International Trade Mart; and a member of the Board of Liquidation of the City Debt. He is a past president of the Chamber of Commerce of the New Orleans Area. Mr. Dinwiddie is also a director or trustee of a number of local, regional and national trade and business organizations.

Mr. Andrus was graduated from the Tulane University College of Business Administration in 1928. He joined NOPS that same year as an inventory clerk in the gas department storeroom, and served in the accounting and insurance departments until 1934. In that year he became assistant secretary and assistant treasurer, and in 1945 assistant to the vice president. He was elected comptroller in 1947 and vice president in 1952. Mr. Andrus takes an active part in national and local trade and professional groups, and in the work of organizations promoting betterment of the New Orleans area. He is a member of the Board of City Trusts, and has held posts in the New Orleans Area Council, Boy Scouts of America, Red Cross, Cancer Society and others. He was chairman of the 1954 United Fund campaign.

Mr. Nairne is a graduate of Tulane University's College of Engineering. He was first employed by Public Service as a student engineer in 1924 and 1925. He rejoined the company in 1928 as a draftsman and combustion engineer in the gas department. In that department he became successively assistant chief engineer, superintendent of gas distribution and general superintendent. In 1943 he was named assistant to the vice president in charge of operations, and in 1953 was elected vice president.

Mr. Nairne participates in the work of organizations in the utility field, and is active in local civic and business groups. He is past president of the Community Chest and was chairman of the 1957 United Fund campaign. He is a past president of the Louisiana Engineering Society and of the Tulane Alumni Association.

Mr. Hoots joined Public Service in 1919 as a chemist. In 1925 he became assistant chief engineer in the power department. He was named research engineer in 1929 and chief engineer of the company in 1934. He was named assistant to the president in 1939.

W. O. TURNER, President of Louisiana Power & Light Co., has been elected Chairman of the Board, and G. C. RAWLS, Vice President in Charge

of Operations, was elected President of the company.

E. A. RODRIGUE, Assistant to the President, was named a Vice President, and JOHN H. ERWIN, JR., was elected Assistant Treasurer and Assistant Secretary.

Mr. Turner joined LP&L in 1928, and was made president and general manager in 1939. A graduate of the University of Arkansas and recently nominated as one of its distinguished alumni, he is a board member of Whitney National Bank of New Orleans, Middle South Utilities, Inc., and the Chamber of Commerce of the Greater New Orleans Area. He is vice chairman of the Board of Governors, Ochsner Foundation Hospital, and vice chairman of the Mississippi River Bridge Authority. He is a former member of the EEI Board.

Mr. Rawls joined LP&L in 1939 as vice president in charge of operations. He was associated with Mississippi Power & Light Co. from 1926 to 1939, advancing from laborer to division manager before joining LP&L. A graduate of Mississippi State College in electrical and civil engineering, Mr. Rawls also holds a master's degree from Columbia University in mathematics, physics and electricity. He is a past president of the Louisiana Safety Association and is a board member of International House.

Mr. Rodrigue joined LP&L in 1933 as an assistant switchboard operator at the company's Sterlington steam-electric generating station near Bastrop. He later served as sales representative, industrial engineer, and division sales manager in the company's Northern Division. In 1946 he was named residential and rural sales manager, and in 1953 was promoted to manager of LP&L's Southeastern Division. In March of this year he was made assistant to the president and became a member of the company's General Office executive staff. He holds a degree in mechanical and electrical engineering from Tulane University.

Mr. Erwin joined the company as a student trainee in 1948. In 1958 he was named statistician in the company's General Office accounting department. He holds a degree in accounting from LSU.

Hydraulic Power Committee Meeting

(*Continued from page* 258)

cussed the status of international standardization of hydraulic tests. He is chairman of an American delegation that will meet with representatives of other countries on this subject in Madrid during the coming summer.

J. H. Kime, who has recently succeeded K. O. Strenge as Chairman of the Weather Modification Subcommittee, presented a report summarizing the development of the science and art of weather modification since the Committee's last meeting. According to the progress report weather modification has apparently reached a temporary plateau with recent articles and reports contributing little new basic data.

The report of the Vibration in Hydro-Electric Plants Subcommittee was presented by G. J. Vencill, Chairman. This Subcommittee constitutes EEI representatives on the EEI-NEMA Joint Committee on Vibration in Hydro-Electric Power Plants. The joint committee is conducting a study of vibration problems and their corrections which it will attempt to correlate with manufacturer's data on units involved. As a result of the subcommittee's work on the joint committee project thus far, Mr. Vencill concluded that most causes of hydraulic station vibration are satisfactorily resolved.

R. A. Lane has accepted the assignment of maintaining liaison on behalf of the Hydraulic Power Committee with the Institute's Research Projects Committee. Mr. Lane reported on the work of the Research Project's group and called attention to the necessity for cooperation of EEI technical committees with the Research Projects Committee. The assistance of specialized EEI groups will be required to recommend projects, determine the desirability of proposed research programs for EEI sponsorship, and to provide technical direction for sponsored projects.

Pacific P&L Projects

A. E. Alspaugh, representing E. L. Bayles, reported on the Lewis River Projects and the proposed Eden Ridge Project of the Pacific Power & Light Co. Included in the Lewis River development are Mervin, Yale, and Swift installations that have been completed and license applications are now pending before the Federal Power Commission for a fourth dam, the Muddy Project, on the Lewis River and the Meadows Project which will harness power from Lewis River tributary streams. The Eden Ridge Project proposed for the South Fork of the Coquille River in southwestern Oregon is planned to include a 75,000-kw hydroelectric plant.

During the round table discussion period considerable attention was devoted to pumped storage. One of the most interesting developments in the hydroelectric industry in recent years has been the reversible pump-turbine which operates in one direction of rotation to produce power and in the opposite direction to pump water. Several members detailed studies on possible pumped storage installations utilizing reversible pumped turbines to pump water to storage reservoirs during off-peak load periods to provide peaking capacity when required. Several of these studies have indicated that a minimum economic head for such installations is from 180 to 200 feet.

Other subjects discussed during the round table period included the protection of earth dam downstream slopes, concrete dam maintenance at high elevations, concrete erosion due to water spilled over dams, oxygen content of reservoir water, and the underwater inspection of concrete structures. Other topics considered were hydraulic unit shaft alignment, the effect of turbine pitting and repairs on output and efficiency, the operating speed of intake gates, and experience with trash booms. A particularly interesting report during the round table discussion period was given by P. M. Hess who described unprecented ice floes on the Susquehanna River during January of this year.

In considering a probable location for the 1960 meeting, particular attention will be given to the Susquehanna River area in Pennsylvania.

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